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Food Selection for Good Nutrition in Group Feeding

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Home Economics Research Report No. 35

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This publication is primarily for the use of food consultants, nutritionists, and others who help food managers and administrators in resident institutions to plan for meals that are nutritionally adequate and satisfying and that are within the money allowance.

Various suggestions are given for using food guides developed by the U.S. Department of Agriculture in planning and evaluating meals. From the methods described, those appropriate for use in the institution may be selected.

This publication is an extensive revision of and supersedes Agriculture Handbook 16, *Planning Food for Institutions*. In 1965, appendix E of Handbook 16 was revised and published separately as Agriculture Handbook 284, *Food Purchasing Guide for Group Feeding*.

2061

Food Selection for Good Nutrition in Group Feeding

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by Betty B. Peterkin
Consumer and Food Economics Institute
Agricultural Research Service
United States Department of Agriculture

Home Economics Research Report No. 35

Washington, D.C.

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Food Selection for Good Nutrition in Group Feeding

By BETTY B. PETERKIN, *Consumer and Food Economics Institute,
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Mealtimes are of particular importance to people who live in an institution. Food may be their chief pleasure, especially if their activities are limited. Well-planned and satisfying meals can help create a happy atmosphere, and they can promote a feeling of well-being.

In many institutions, resources of time, money, staff, and facilities are limited. It is only with careful planning and serving that meals can help to meet some of the social, psychological, and

esthetic, as well as nutritional, needs of the residents.

Part I of this report includes some aids for planning menus. Part II presents two tools for estimating the nutritional adequacy of the foods used—(1) low- and moderate-cost food plans that show amounts of foods that will furnish well-balanced meals for individuals with different nutritional needs, and (2) a short method for calculating the nutritive value of foods used.

Part I. PLANNING MENUS

The first step in providing satisfying meals is planning the menu. For this task, it is helpful if the food manager has—

- A *special place* apart from the kitchen where files and records are available.
- A *special time* set aside when interruptions are at a minimum. Menus should be planned at least a week in advance, and often they need to be planned even further ahead, depending on the time when food orders must be placed. This advance planning is necessary for reliable food delivery and efficient use of staff time.

Some factors to be considered by the food manager in planning menus are—

- Nutritional needs of residents.
- Food likes of residents.
- Appetite appeal of meals.
- Staff time and skills.
- Equipment and facilities.
- Money allowance for food.

Meeting Nutritional Needs

The Daily Food Guide¹ can help the food

manager plan menus that are nutritionally adequate and appealing. The guide specifies the minimum number of servings to choose daily from four food groups—meat, milk, vegetables and fruits, bread and cereals. Other foods are added to complete meals and satisfy the appetite.

A Daily Food Guide

Meat Group

Foods include.—Beef; veal; lamb; pork; variety meats, such as liver, heart, kidney. Poultry and eggs. Fish and shellfish. As alternates—dry beans, dry peas, lentils, nuts, peanuts, peanut butter.

Amounts recommended.—2 or more servings daily.

Count as a serving.—2 to 3 ounces (not including bone weight) cooked lean meat, poultry, or fish. Count as alternates for $\frac{1}{2}$ serving meat, poultry, or fish: 1 egg; $\frac{1}{2}$ cup cooked dry beans, dry peas, or lentils; 2 tablespoons peanut butter.

Contribution to diet.—Foods in this group are valued for their protein, which is needed for growth and repair of body tissues—muscle, organs, blood, skin, and hair. These foods also provide iron, thiamine, riboflavin, and niacin.

¹ U.S. DEPARTMENT OF AGRICULTURE. FOOD FOR FITNESS—A DAILY FOOD GUIDE. U.S. Dept. Agr. Leaflet 424. Rev. 1971.

Milk Group

Foods include.—Milk—fluid whole, evaporated, skim, dry, buttermilk. Cheese—cottage; cream; cheddar-type—natural or processed. Ice cream and ice milk.

Amounts recommended.—Some milk daily for everyone. Recommended amounts are given below in terms of whole fluid milk:

	8-ounce cups
Children under 9	2 to 3.
Children 9 to 12	3 or more.
Teenagers	4 or more.
Adults	2 or more.
Pregnant women	3 or more.
Nursing mothers	4 or more.

Part or all of the milk may be fluid skim milk, buttermilk, evaporated milk, or dry milk. Amounts suggested include milk used in soups, desserts, baked goods, and other foods.

Cheese, ice cream, and ice milk may replace part of the milk. The amount needed to replace a given amount of milk is figured on the basis of calcium content. Common portions of various kinds of cheese, ice cream, and ice milk and their milk equivalents in calcium are—

1-inch cube cheddar-type cheese	= $\frac{1}{2}$ cup milk.
$\frac{1}{2}$ cup cottage cheese	= $\frac{1}{3}$ cup milk.
2 tablespoons cream cheese	= 1 tablespoon milk.
$\frac{1}{2}$ cup ice cream or ice milk	= $\frac{1}{2}$ cup milk.

Contribution to diet.—Milk is our leading source of calcium, which is needed for bones and teeth. It also provides high-quality protein, riboflavin, vitamin A, and many other nutrients.

Vegetable-Fruit Group

Foods include.—All vegetables and fruit. This guide emphasizes those that are valuable as sources of vitamin C and vitamin A.

Sources of Vitamin C

<i>Good</i>	<i>Fair</i>
grapefruit or grapefruit juice	honeydew melon
orange or orange juice	lemon
cantaloupe	tangerine or tangerine juice
guava	watermelon
mango	asparagus
papaya	cabbage
raw strawberries	cauliflower
broccoli	collards
brussels sprouts	garden cress
green pepper	kale
sweet red pepper	kohlrabi
	mustard greens
	potatoes and sweet-potatoes cooked in the jacket
	rutabagas
	spinach
	tomatoes or tomato juice
	turnip greens

Sources of Vitamin A

apricots	mango
broccoli	persimmon
cantaloup	pumpkin
carrots	spinach
chard	sweetpotatoes
collards	turnip greens
cress	other dark-green leaves
kale	winter squash

Amounts recommended.—4 or more servings daily, including: (a) 1 serving of a good source of vitamin C or 2 servings of a fair source, and (b) 1 serving, at least every other day, of a source of vitamin A. If the food chosen for vitamin C is also a source of vitamin A, the additional serving of a vitamin A food may be omitted. The remaining 1 to 3 or more servings may be of any vegetable or fruit, including those that are valuable for vitamin C and vitamin A.

Count as a serving.— $\frac{1}{2}$ cup of vegetable or fruit; or a portion as ordinarily served, such as 1 medium apple, banana, orange, or potato, half a medium grapefruit or cantaloupe, or the juice of 1 lemon.

Contribution to diet.—Fruits and vegetables are valuable chiefly for their vitamin and mineral content. They are also important as a source of roughage. In this guide, fruits and vegetables supply nearly all the vitamin C and over half the vitamin A.

Vitamin C is needed for healthy gums and body tissues; vitamin A, for growth, normal vision, and healthy condition of skin and other body surfaces.

Bread-Cereal Group

Foods include.—All breads and cereals that are whole grain, enriched, or restored. Check labels.

Specifically, this group includes: Breads; cooked cereals; ready-to-eat cereals; cornmeal; crackers; flour; grits; macaroni and spaghetti; noodles; rice; rolled oats; and quick breads and other baked goods if made with whole-grain or enriched flour. Parboiled rice and wheat also may be included in this group.

Amounts recommended.—4 servings or more daily; or, if no cereals are chosen, have an extra serving of breads or baked goods, to make at least 5 servings from this group daily.

Count as a serving.—1 slice bread; 1-ounce ready-to-eat cereal; $\frac{1}{2}$ to $\frac{3}{4}$ cup cooked cereal, cornmeal, grits, macaroni, noodles, rice, or spaghetti.

Contribution to diet.—Foods in this group furnish worthwhile amounts of protein, iron, several of the B-vitamins, and food energy.

Other Foods

To round out meals and meet energy needs, almost everyone will use some foods not specified in the four food groups. Such foods include unenriched, refined breads, cereals, flours; sugars; butter, margarine, other fats. Often they are ingredients in a recipe or added to other foods during preparation or at the table.

Try to include some vegetable oil among the fats used.

A Meal Pattern

A meal pattern shows the kinds of food to include in a meal. When used along with the Daily Food Guide, it helps assure a well-balanced meal. Although patterns vary with custom, food requirements, and type of meal served, many institutions use patterns similar to those listed below:

Example of meal patterns

<i>Breakfast</i>	<i>Dinner</i>
Fruit or juice	Main dish
Cereal and/or	Vegetables, 2 or 3 (salad may replace 1)
Main dish	Bread, spread
Bread, spread	Dessert
Beverage	Beverage
 <i>Lunch or supper</i>	
<i>Snack</i>	
Main dish	
Vegetable or salad	
Bread, spread	
Dessert	
Beverage	

Institutions with limited funds, equipment, and staff may find it necessary to serve fewer items than shown in the patterns and somewhat larger portions of those foods served. Even when these patterns are used, cost and equipment and staff time required may vary widely, depending on the foods selected.

Menus for 2 days that were planned using the meal patterns and the Daily Food Guide are shown on page 4. Monday's menu includes foods that are less expensive and require less time to prepare than Tuesday's menu. The form on which the menus are shown is one that may be convenient to use in menu planning.

Check

- Includes a total of 4 ounces or more of cooked lean meat, poultry, or fish. Other protein-rich foods may replace part of the meat. Count as equal to 1 ounce of meat—
 - 1 egg.
 - $\frac{1}{2}$ cup of cooked dry beans, peas, or lentils.
 - 2 tablespoons of peanut butter.
- Includes some meat, poultry, fish, eggs, cheese, or milk at each meal.
- Includes milk as follows:

Adults-----	16 fluid ounces (2 cups) or more.
Children under 9-	16 to 24 fluid ounces (2 to 3 cups).
Children 9 to 12-	24 fluid ounces (3 cups) or more.
Teenagers-----	32 fluid ounces (4 cups) or more.
Pregnant women-	24 fluid ounces (3 cups) or more.
Nursing mothers-	32 fluid ounces (4 cups) or more.
- Cheese, ice cream, or ice milk may replace part of milk (see p. 2).
- Includes a total of 2 cups or more of raw or cooked vegetable and fruit.
- Includes $\frac{1}{2}$ cup or more of a good source of vitamin C or 1 cup or more of fair sources of vitamin C.
- Includes $\frac{1}{2}$ cup or more of dark-green or deep-yellow vegetables every other day.
- Includes at least 5 slices of bread or similar amounts of other bakery products or 3 slices of bread or similar amounts of other baked goods plus 1 ounce of ready-to-eat cereal or $\frac{1}{2}$ to $\frac{3}{4}$ cup of cooked cereal, cornmeal, grits, macaroni, noodles, rice, spaghetti. To count, all breads, baked goods, cereals, and cereal products should be whole grain, enriched, or restored.
- Includes other foods to round out meals and satisfy appetites.
- Includes some vegetable oils among the fats used.

Checking Menus With a Daily Food Guide

One way to help assure that nutritional needs are met is to check the day's food for a resident as follows:

Appetite Appeal

Meals should be nourishing, but they also need to be appetizing and attractive to be enjoyed. How food looks and tastes often determines whether it is eaten. Interest is increased by occasional use of residents' favorite dishes and menus. Appeal is

Menu for week: Mar. 10 to Mar. 17

[Persons to be served 150 men]

Pattern	Monday			Tuesday		
	Recipe ¹	Item	Serving size ²	Recipe ¹	Item	Serving size ²
BREAKFAST:						
Fruit or juice		Orange juice	3/4 c.		Grapefruit half	Half.
Cereal and/or	1107	Wheat cereal, milk	1 c., 1/2 c.			
Main dish				1121	Scrambled eggs	1 1/2.
Bread		Toast	2 sl.		Toast	2 sl.
Spread		Jam	2 tsp.		Jelly	2 tsp.
Beverage		Coffee or tea	1-2 c.		Coffee or tea	1-2 c.
DINNER:						
Main dish	1250	Oven-fried chicken	(4 oz. cooked) 1/4 bird.	1211	Roast beef, gravy	4 oz.
Vegetable	1332	Whipped potatoes	1 c.		Baked potato	1 lg.
Vegetable and/or	1346	Glazed carrots	1/2 c.	1802	(Hollandaise) broccoli spears.	2 med.
Salad		Celery sticks	3 st.	1466	Apple, raisin	1/2 c.
Bread		Bread	3 sl.		Bread	2 sl.
Spread		Margarine	1 1/2 tsp.		Butter	1 tsp.
Dessert	1581	Cherry cobbler	1 portion	1502	Peppermint bavarian	1 portion
Beverage		Coffee or tea	1-2 c.		Coffee or tea	1-2 c.
LUNCH OR SUPPER:						
Main dish	1202	Split pea soup	1 c.	1228	Baked ham	2 oz.
Vegetable and/or						
Salad		Peach, cottage cheese	1/2 peach, 1/2 c.	1475	Garden salad	3/4 c.
Bread	1618	{ Crackers Corn muffin	2 2		Seeded roll	1 lg.
Spread		Margarine	1 tsp.		Butter	2 tsp.
Dessert	1510	Baked custard	1/2 c.	1582	Strawberry pie	1/8 pie.
Beverage		Milk	1 c.		Milk	1 c.
SNACK:						
Fruit, cookie, or other		{ Crackers Peanut butter	6 1 T.		Assorted fruit	1.
Beverage	1703	Fruit punch	1 c.		Milk	1 c.

¹ Number of recipe in file.² Appropriate for average man.

Changes in menu as served:

Evaluation (plate waste, preparation, etc.):

heightened by variety in a meal, which can be provided in many ways—

- By the foods served:

Texture—a crisp, a firm, and a soft food, if possible.

Sizes and shapes.

Color.

Flavor—flavorful foods with milder ones, a bland food with a relish or sauce.

Kinds—include fresh vegetables and fruits as often as possible.

Methods of preparation.

- By the type of service used—for example, a Sunday night buffet, a picnic, or a snack supper on the lawn occasionally.

Practices to avoid in planning meals are—

- Repetition of menus on the same day of each week. For example, much of the interest in food is lost if the resident knows that every Monday he will have chicken pie, and every Tuesday meat loaf.
- Frequent inclusion of mixtures that indicate the use of leftovers.
- Use of seasonings and gravies that give the same flavor to different foods.
- Use of a "better" menu for selected groups such as staff.

One significant test of appetite appeal of meals is whether the food is eaten. Occasional checks of food left on plates will indicate the menus and food items that are unacceptable to residents. In the small institution where the food manager is in the dining room at mealtime, general observation of plate waste may be sufficient. Usually, however, a systematic check, such as the one described below, is desirable.

1. Scrape foods left on plates into separate containers—one for each food served. If the number of persons served is small, check waste from all plates. If many are served, check all plates at several tables selected at random; or check every second, fifth, or 10th plate returned to the dishwashing area.

2. Record the number of plates checked and the total number of plates served.

3. Weigh or measure and record the edible waste in each container.

4. For each food, divide the amount of edible waste by the total amount of edible food served on the number of plates checked to determine the percentage of edible food left on plates.

Estimate the total amount of each food served on the plates checked either by multiplying the amount served to each person by the number of plates checked, or by determining the percentage of total plates checked (plates checked/plates served) and multiplying that percentage times the total amount of the food served (amount prepared minus amount left over).

Suitability to the Institution

Personnel

The number of workers and their ability to handle the jobs to be done affect what may be expected in the food preparation. They are, therefore, a major consideration in planning menus. When there is a shortage of experienced help, it may be desirable to:

- Plan menus that are easy to prepare. Consider the sample breakfast menus on page 4. Preparation of the Tuesday's menu of grapefruit half, scrambled eggs, and toast requires more staff time than the Monday's breakfast of juice, cereal and milk, and toast and jam. Tuesday's breakfast may be unsuitable for an institution that is short of help at breakfast time.
- Include some foods in each menu that can be prepared in advance and held. For example, if the Tuesday's breakfast menu were to be used, the grapefruit halves might be sectioned on Monday afternoon and refrigerated overnight.
- Plan to use some partially prepared foods—peeled or dehydrated potatoes, frozen and canned vegetables.
- Distribute over several days the preparation duties for holidays and other special days. If facilities are available, prepare ahead and freeze pies or piecrusts, cakes, and other baked goods. Prepare or partially prepare and freeze meat dishes.

Equipment

The kind of equipment the institution has for preparation and storage of food determines, in part, the type of meals that can be served. Some points to keep in mind as meals are planned are:

- Include in a meal only foods that can be prepared conveniently in time allotted with available heating units. Divide workload over range, oven, and steamer space available.
- Plan use of fresh, chilled, or frozen foods in amounts no greater than can be stored in available freezer, refrigerator, or other cold storage.
- Consider numbers and kinds of serving dishes and tools needed.

Money Allowance

Selection of the menu is an important factor that affects the cost of meals. Menus may be unnecessarily costly if they include:

1. A large proportion of the more costly foods,

particularly meats and some fruits and vegetables. (One way to check this is to compare the amounts of these foods used with those suggested in the low- and moderate-cost food plans described in Part II of this publication.)

2. Too many expensive cuts of meats. Compare costs of equal-sized servings of various types and cuts of meats to find which are better buys.

3. Fruits and vegetables that cost considerably more per serving than others of similar nutritive value.

4. Foods of unnecessarily high quality for intended use—Grade AA extra large eggs in baking or for scrambling; tender cuts of meat for stew; fancy pack fruits for fruit cup, pies, or cobblers.

5. Too much variety at each meal. It usually costs less to prepare and serve large portions of a few foods than small portions of several foods. To cut costs, for example, liberal amounts of one vegetable may replace small servings of two vegetables at a meal.

A file of recipes with cost per portion, or per serving, recorded on each recipe may help the food manager keep within the food cost allowance. For instance, such cost figures show up expensive dishes that the manager may want to include only occasionally or only in combination with less costly food. The cost of a portion may be calculated on the recipe card as shown below by figuring the total cost of ingredients and then dividing the total by the number of portions obtained.

Planning for Total Food Management

An orderly plan for all activities involved in providing meals—made well in advance—is a key to good food management. Here are some of the activities that make up such a plan:

- Record menus on a form designed for that purpose (p. 4).
- Check menus by A Daily Food Guide (p. 3).
- Check menus for appetite appeal (p. 3).
- Check menus for suitability in institution with regard to staff, equipment, and money allowance.
- Select recipes to be used.
- Decide on sizes of servings.
- Estimate number of persons to be served.
- Adjust recipes to provide needed number of servings.
- Figure amounts of foods needed.
- List foods and amounts needed separately by source of supply—storage room; dairy, meat, and grocery suppliers.
- Order foods needed.
- Estimate cost.
- Develop work schedules for staff.
- Check occasionally nutritional adequacy of food served (see Part II).
- Check periodically the amount of food left on plates (p. 5).

Additional Tools for Menu Planning

List of Foods

Lists of foods by their place in the meal pattern, such as salads, desserts, and breads, may be help-

Sample recipe cost record

Meat loaf: Card No. 1221		Portion size: 4 ounces	
Ingredient	Amount for 100 portions	Cost per unit (dollars)	Cost (dollars)
Beef, ground	16 pounds	0.600 per pound	9.600
Pork, ground	5 pounds	.620 per pound	3.100
Salt	½ cup	.033 per pound	.010
Onion, chopped	1½ cups	.100 per pound	.052
Bread crumbs, coarse, dry	1½ gallons	.150 per pound	.750
Eggs, beaten	10	.590 per dozen	.492
Milk	1½ quarts	.230 per quart	.345
Tomato juice	1½ quarts	.483 per No. 10 can	.242
Total cost of recipe			14.591
Cost per portion			.1459
Date of pricing, Mar. 7, 1972.			

NOTE.—For reliable estimates of recipe costs: (1) Be sure that the number of portions indicated on the recipe card is approximately the same as the number of portions served from the recipe in the institution. Use of standardized spoons or scoops will help in obtaining uniform servings; (2) Recalculate costs of recipes when prices of major ingredients change markedly.

ful in planning appetizing meals. To be most useful, such lists should include all foods normally served in the institution. As new menu items are tried and approved, they may be added to the list. The approximate cost per serving may also be entered by each item, particularly for meats.

This cost helps the food manager in selecting foods for meals within the money allowance. Or the lists may be subdivided into high-, medium-, or low-cost items as a means of doing this.

The lists that follow show one type of form that can be used.

Breakfast

Fruit or juice	Cereal	Main dish	Bread
Baked apple	<i>Cooked</i>	<i>Eggs</i>	<i>Toast</i>
Cantaloup	Cornmeal mush	Fried	Raisin
Grapefruit juice	Grits	Omelet	<i>Muffins</i>
Orange juice	Farina	Poached	Blueberry
Orange or grapefruit halves	Oatmeal	Scrambled	Bran
Sliced banana	Scrapple	Soft cooked or hard cooked	Cornmeal
Stewed apricots	<i>Ready-to-eat</i>	<i>Meat, fish</i>	Whole wheat
Stewed prunes	Corn flakes	Bacon	
Tomato juice	Shredded wheat	Canadian bacon	
	Wheat flakes	Ham	
		Codfish	
		Link sausage	
		Sausage cake	

Lunch or supper

Meat dish	Main dish	Chowder, soup	Vegetable and salad	Bread	Dessert
Sandwich					
Baked hash	Eggs and onion	<i>Chowders</i>	Cranberry and apple	<i>Bread</i>	<i>Cookies</i>
Baked stuffed peppers	Meat loaf	Corn and tomato	Jellied tomato	Cornbread	Date bars
Beef shortcake	Peanut butter	Fish	Mixed vegetable	Spoon bread	Ginger
Chicken chow mein	and jelly	<i>Soups</i>	Mixed fresh fruit	<i>Muffins</i>	Peanut butter
Chile con carne	Sliced cheese	Cream of tomato	Sliced eggs with tomato and green pepper	Cheese	<i>Puddings</i>
Creamed chipped beef		Cream of split pea		Plain	Bread
Italian spaghetti		Navy bean			Cottage
Tuna salad		Old-fashioned potato			Prune whip
					<i>Fruit</i>
					Applesauce
					Fresh fruit cup
					Melon

Dinner

Main dish	Cooked vegetable		Salad	Bread	Dessert
	Potato	Other			
<i>Beef</i>					
Browned beef stew	<i>White</i>	<i>Carrots</i>	<i>Cabbage</i>	<i>Bread</i>	<i>Cakes</i>
Corned beef	Au gratin	Buttered	Cabbage and apple	Enriched	Chocolate
Liver	Baked	Creamed	Cabbage and carrot	Oatmeal	Dutch apple
Meat loaf	Boiled in jackets	Glazed	Cabbage, carrot, raisin	Raisin	Gingerbread
Meat pie	Creamed	O'Brien	Cabbage and green pepper	Rye	Plain, white
Patties	French fries	Panned	Cabbage and tomato	<i>Rolls, all kinds</i>	<i>Cookies</i>
Roast	Potato cakes	Scalloped	Coleslaw	<i>Muffins</i>	Oatmeal
Spanish meat balls	Potato puff	Timbales		Bacon	<i>Puddings</i>
Stuffed flank steak	Roast potato			Plain	Baked custard
	Scalloped			Prune	Cornstarch
	Whipped			<i>Biscuits</i>	<i>Pastry</i>
				Baking powder	Cherry tarts
					Pies

Lists of some dishes in which leftovers can be used are shown below. Occasionally the manager may have extra amounts of some foods cooked for use in preparing a dish at a later meal. Or foods may be leftover because of food management problems such as—

- Food prepared for too many persons.
- Food served in portions smaller than planned for.

- Food chosen by fewer persons than expected because it was—
 - poorly cooked and seasoned.
 - not attractively served.
 - not served cold or hot as intended.
 - not a popular choice.

Leftovers, planned or unplanned, lose some food value during storage and reheating, but most foods retain enough to make them worth using. Leftovers should be held only a short time—no more than a day for many foods.

Suggestions for use of leftovers

Cooked meat	Cooked potato	Cooked vegetable	Cooked cereal	Bread, cake	Eggs	Milk
Casserole dishes	Chowder	Meat pie	<i>All kinds</i>	<i>Bread, dry crumbs</i>	<i>Egg yolks</i>	<i>Milk</i>
Croquettes	Creamed	Salads	Fried	Breaded chops	Cakes	Cakes
Hash	Fried	Soup	Meat loaf	Brown betty	Pie fillings	Cookies
Meat pie	Hash	Stew	Rice	Croquettes	Salad dressing	Custard
Salads	Meat pie	Stuffed	Fondue	<i>Soft crumbs</i>	<i>Egg whites</i>	Muffins
Sandwich fillings	Potato cakes	peppers	With tomatoes	Meat loaf	Cake	<i>Sour cream</i>
	Stew		<i>Macaroni, noodles</i>	Stuffing	Meringue	Cakes
	Stuffed baked		With cheese	<i>Cake or cookies</i>	Puddings	Cookies
			With meat sauce	Brown betty	<i>Cooked eggs</i>	Salad
			With tomatoes	Ice-box cake	Creamed	dressing
					Deviled	Swiss steak
					Salads	
					Sandwich fillings	

File of Tested Recipes

A file of recipes can be an aid in preparing menus and market orders as well as food for the table. Recipes should be clearly written, preferably on 5" x 8" cards. Plastic cases for cards are a convenience.

For a useful recipe file, the recipes included should meet these criteria:

- Can be prepared with the staff, equipment, and money allowance available.
- Have been tested in the institution kitchen for acceptable product and in the dining room for acceptability to the residents.
- Yield amounts suitable for the institution.
- Give size and number of servings provided.
- May show approximate cost per serving (see p. 6).

For convenience in using, cards should be filed alphabetically within meal pattern categories, such as breakfast, lunch, and dinner main dishes, cereals, cooked vegetables, salads, and breads. They may be numbered for accurate reference on

menu forms (see p. 4) or in giving instructions to staff. A four-digit numbering system in which the first two digits refer to the meal pattern category and the last two digits refer to the specific recipe will allow for adding recipes. For example, all breakfast main dishes might have numbers between 1100 and 1199. If the file contains only 15 such recipes, the numbers from 1116 to 1199 would be omitted until additional recipes for breakfast main dishes are accepted. Recipes for dinner and luncheon main dishes might be numbered from 1200 to 1253, leaving numbers 1254 to 1299 free for later use.

Home economics departments of many State colleges, universities, and commercial companies develop recipes for quantity service. These tested recipes are usually available upon request either free or at moderate cost. Two files of recipes have been developed in the USDA laboratories: *Recipes for Quantity Service* and *Recipes for Type A School Lunches*. (See inside back cover.)

Rotating Cycle of Menus

Many food managers feel that they can serve good meals most efficiently by using a set of menus over and over again. Whether the use of a cycle of menus leads to better food service depends largely on the set of menus selected and the way they are adjusted to meet special situations.

The two main types of cycle menus are:

1. Complete menus for several weeks—three or four or more—are repeated. Market lists, recipes, and work schedules can be used again and again. Only slight revisions are needed to account for changes in such items as number of persons eating, foods not available, and changes in staff available. Separate menu cycles for each season help allow for use of fresh items available only during a part of the year. Unless the cycle is for several weeks, residents may find eating the same combinations of foods monotonous.

2. Only main dish items for 2 weeks or more are repeated. Additional foods—vegetables, fruits, desserts—are varied. (An example of a 15-day cycle of main dish items with an extra Sunday is shown below.) This cycle allows for more variety in meals. Fruits and vegetables in season and foods offered at special prices can be included easily.

Menus for the past few weeks may be a good basis for a suitable cycle of menus. As the cycle is

used in the institution, menus may be improved and more efficient procedures for their preparation may be developed. Answers to the following questions may help identify possible improvements.

- Are meals enthusiastically received?
- Is food left on plates?
- If so, are servings too large, are foods not liked by many residents, or are foods poorly cooked?
- Is there kitchen waste?
- Are the amounts of foods ordered too large, too small?
- Could some foods be bought in large amounts at less cost without spoilage or waste?
- Are recipes easy to follow and for amounts usually prepared?
- Can work schedules be improved to make better use of equipment and staff?

If a cycle is as short as 2 weeks, a shift from one day of the week to another is desirable as shown in the sample rotation of main dish menus on page 10.

Menus can be changed as needed—

- to allow for Sundays, holidays or special types of service, such as a picnic or buffet.
- to make possible the use of a meat or other food offered at a special price.
- to replace items that become unpopular or too costly.

Sample main dish cycle for 2 weeks

Day	Menu No.	Dinner	Supper or lunch
Sundays	1	Baked breast of chicken	Welsh rarebit on toast
	2	Baked ham	Vegetable soup
	3	Roast pork	Baked omelet
Other days	4	Baked haddock	Assorted cold cuts
	5	Pot roast of beef	Cottage cheese
	6	Italian spaghetti	Chipped beef on baked potato
	7	Rib pork chops	Eggs benedict
	8	Tuna casserole	Barbecue beef on bun
	9	Braised liver	Macaroni and cheese
	10	Meat loaf	Cheese sandwich
	11	Beef stew	Egg salad sandwich
	12	Chicken and noodles	Scalloped potatoes and ham
	13	Chop suey	Cold sliced corned beef
	14	Salmon croquettes	Baked hash
	15	Meat pie	Steamed wieners
	16	Hamburger patties	Lima bean casserole
	17	Veal cutlet	Turkey rice casserole

Sample rotation of main dish menus

[By menu number above]

Day	1st week	2d week	3d week	4th week
Sunday	1	2	3	1
Monday	4	10	16	8
Tuesday	5	11	17	9
Wednesday	6	12	4	10
Thursday	7	13	5	11
Friday	8	14	6	12
Saturday	9	15	7	13

Records

For good meal planning, records of past menus, numbers of persons served, and quantities and costs of foods used are needed—whether the institution is large or small. Such records help the administrator make decisions about the food budget and give the manager a basis for evaluating and improving the food service.

If no records or inadequate records have been kept, one type of record may be adopted at a

time. For example, a form for recording the week's menu, such as the one shown on page 4, may be set up and a way of filing decided on. These records should show the menu as *actually served*, not as planned. Information on this form alone will be sufficient for determining roughly if food needs are met, using procedures specified on pages 13–14 in Part II of this publication. Notations made on menu forms regarding plate waste, ease of preparation, and suggestions for change, recorded on the day the meals are served, will help in planning later menus.

After this type of record has become routine, another type may be adopted—perhaps a record of the amounts and cost of foods used from one food group, such as meat, poultry and fish, or milk and milk products. Month-to-month comparisons between these amounts and quantities of similar foods suggested in the low- and moderate-cost food plans (pp. 20 and 21), may show up weaknesses in menus regarding cost, variety, or nutritional adequacy. Some sample forms for recording quantities and costs of foods as purchased and for making computations for comparing foods used with those suggested in the food plans are shown in Part II.

Part II. TOOLS FOR NUTRITIONAL EVALUATION

Calculating the nutritive value of meals and relating them to nutritional needs of residents is not practical for many food managers. Yet the manager is responsible for seeing that their nutritional needs are met. As a possible solution to this problem, two aids for estimating the nutritional adequacy of diets are discussed in this section.

1. Food plans at low and moderate cost.
2. A short method for calculating nutritive values.

Food Plans at Low and Moderate Cost

The food plans show amounts of groups of foods that will provide a good diet at two cost levels. Amounts are shown in two ways:

- The amounts used—as purchased (tables 1 and 2).
- The amounts served—in servings or other units (tables 3 and 4).

Separate plans are given for boys and girls and men and women of different ages and for pregnant

and lactating women. Foods selected following the plan will furnish a well-balanced diet for the average person of the age and sex specified, if food choices within the food groups follow customary patterns of food use in this country.

In developing these plans, the kinds and quantities of foods used by some institutions, as well as by the country as a whole, were considered. Some adjustments to these dietary patterns were made to give quantities of foods at the two cost levels that would provide an adequate diet using the Recommended Dietary Allowances (1963) as the nutritional goal.

Comparison of foods purchased or served in an institution with quantities of foods specified in the plans will give a measure of the nutritional adequacy in institutional meals. The plans are better gages of the adequacy of diets than is the Daily Food Guide because all major foods in the diet are considered and because definite amounts of each to use are indicated. The guide, a useful tool in planning meals, provides a nutritional floor by indicating minimum servings from four broad food groups, but it does not indicate amounts for a complete diet.

Types of Institutions for Which Plans Are Suitable

The food plans are most useful in institutions in which:

1. Food needs of residents are normal. The plans do not provide for persons who require special types of diets.

2. The resident population is fairly constant, as in children's homes, State institutions, dormitories, and homes for the aged, rather than in hospitals that have a more transient and fluctuating population.

The *low-cost plan* is appropriate for institutions operating on a limited budget. It provides a diet acceptable to most groups in this country. Compared with the moderate-cost plan, it calls for larger quantities of foods in the less expensive food groups—grain products, potatoes, and dry beans and peas—and smaller quantities of food in the more expensive groups—meat, poultry, fish, and fruits and vegetables other than potatoes. It also assumes the use of a large proportion of the less expensive foods within each group; for example, the less expensive grades and cuts of meat and the lower priced vegetables and fruits.

The *moderate-cost plan* allows for larger quantities of foods from the more expensive food groups and for more of the higher priced foods within groups than the low-cost plan.

What Comparison of Food Used With Food Plans Will Show

Quantities of foods in these plans represent only two of many ways foods can be combined to provide a good diet. Thus, institution meals are not necessarily poorly planned if quantities used are not in complete agreement with those given in the plans. On the other hand, consistent and wide deviations from quantities indicated in the plan may show up weaknesses in menu planning as follows:

The nutritive content of the diet.—For example, if a much smaller quantity of milk than stated in the plans has been used, the diet is likely to be low in calcium and possibly in riboflavin.

The cost of the diet.—If quantities of foods from the more expensive food groups are much larger than those suggested, the total cost of foods may be unnecessarily high.

Variety in the diet.—If quantities of the less expensive food groups such as cereals and bakery products, dry beans and peas, and potatoes are much greater than called for in the low-cost plan, the diet is likely to be monotonous.

Management practices.—The use of more food from several groups than given in the plans may indicate excessive waste. If the amounts of food as purchased are used for comparison, waste may be in preparation of food for the table, waste at the table, or waste through discarding leftovers. Poor record keeping or pilferage also may account for part of the difference. A 5 to 10 percent allowance for food discard in terms of calories is included in the low-cost plan, and about 15 percent in the moderate-cost plan.

Some Features of the Food Plans

- Quantities in the plans (as purchased) are given for 11 separate groups of foods, each made up of foods with similar nutrient-giving qualities. The first nine groups are component parts of the four major groupings of A Daily Food Guide. The last two, fats and oils and sugars and sweets, are included in the guide as a part of "other food to round out meals." Commonly used foods in each of these 11 groups are listed on page 12.
- Quantities in the plans (as served) are given for only the four major groupings of A Daily Food Guide.
- Miscellaneous items—coffee, tea, and cocoa, seasonings and flavorings, baking powder and soda, and the like—are not included in the food plans. When cost estimates are made, these items should be taken into account.
- Food plans were developed to meet nutritional needs of persons in the middle year of each age group who are moderately active, in good health, and of average weight. If most of the children in an institution are near the upper limit of an age group, quantities given for the next older group are recommended. Adjustments may be made for residents who are extremely active or are sedentary or bedridden. Persons engaged in heavy labor may need as much as one-fourth more food. For bedridden individuals, less fats and sweets and breads, cereals, and bakery products probably should be used than shown in the plans. Care should be taken to include vegetables, fruits, milk, eggs, and lean meats as specified.

Foods Included in the Eleven Food Groups

1. Meat, poultry, fish:

Beef	Turkey
Game	Fish, all kinds
Lamb	Shellfish
Mutton	Brains
Pork	Heart
Veal	Kidney
Chicken	Liver
Duck	Tongue
Goose	Sweetbreads
Bacon and salt pork ¹	
Sausages, luncheon meats	
Soups and stews and other mixtures that are mostly meat	

2. Eggs (fresh, frozen, dried).

3. Dry beans and peas, nuts:

Dry beans, all kinds	Peanuts
Dry peas	Peanut butter
Lentils	Soybeans
Nuts, all kinds	Soya flour and soya grits

4. Milk, cheese, ice cream:

Milk—fluid whole, evaporated, skim, dry, butter-milk	
Cheese—cottage, cream, cheddar-type—natural or processed	
Ice cream, ice milk	

5. Dark-green and deep-yellow vegetables (fresh, canned, frozen):

Broccoli	Pumpkin
Carrots	Spinach, other dark leafy greens
Chard	
Collards	Sweetpotatoes
Cress	Winter squash
Kale	

6. Citrus fruit and tomatoes (fresh, canned, frozen):

Grapefruit	Tangerine juice
Grapefruit juice	Tomato catsup
Lemons	Tomato juice
Limes	Tomato puree
Oranges	Tomato sauce
Orange juice	Tomatoes
Tangerine	

7. Potatoes (fresh, canned, frozen, dry).

8. Other vegetables and fruits:

Asparagus	Apples
Artichokes	Apricots
Beets	Avocados
Brussels sprouts	Bananas
Cabbage	Berries
Cauliflower	Cantaloup
Celery	Cherries
Corn, sweet	Cranberries
Cucumbers	Currants
Green lima, snap beans	Dates
Green peppers	Figs
Lettuce	Grapes
Okra	Guava
Onions	Mango
Parsnips	Melons
	Papaya

8. Other vegetables and fruits—Continued

Peas	Peaches
Red peppers, sweet	Pears
Radishes	Pineapple
Rutabagas	Plums
Sauerkraut	Prunes
Summer squash	Raisins
Turnips	Strawberries
Soups, other mixtures that are mostly vegetables	Watermelons
Vegetable juices	Mixtures, that are mostly fruit
	Fruit juices

9. Flour, cereal, bakery products:

Flour and meal, all types	Pies
Uncooked cereals—barley, oats, rice, rye, wheat	Rolls
Ready-to-eat cereals—all types	Prepared mixes for bakery products
Breads—all kinds	Macaroni, spaghetti, and other pastes
Cakes	Canned and frozen mixtures that are mostly grain, as spaghetti, ravioli
Cookies	
Crackers	

10. Fats and oils:

Butter	Shortening, including lard
Margarine	
Mayonnaise	Suet
Salad dressing	Drippings
Salad and cooking oil	

11. Sugar, sirups, preserves:

Sugar (cane or beet)	Dessert gelatins that are mostly sugar
Molasses	Dessert powders that are mostly sugar
Sirups	
Honey	Fruit ades, punches, drinks
Jam	
Jellies	
Preserves	
Beverage powders	Soft drinks

Selecting the Plan: Low or Moderate Cost

Both plans include foods from which appetizing meals acceptable to most groups can be prepared. At first, it may be best to compare the food used in the institution, either on a basis as served or as purchased, with the food quantities suggested in both plans. The plan that most nearly follows the food patterns already established will probably be best to use as a standard for measuring nutritional adequacy.

The plan may be selected on the basis of cost. Both plans may vary widely in cost, depending on food choices within the groups, the locality, and the degree to which foods are bought in quantity and at wholesale price. For a small institution that buys most foods through local retail markets, the rough estimate of cost given in table 5 may be helpful in choosing the plan best suited to its money allowance. In these estimates it is assumed that foods are bought and served much as they would be in a large family. If similar

¹ These meat items are not good sources of protein. Amounts used should not exceed $\frac{1}{2}$ pound for each 5 pounds of meat, poultry, and fish when quantities of meat, poultry, and fish used are compared with quantities suggested in the plans.

foods are purchased in quantity from wholesale markets, however, the cost would be somewhat less. Using one set of wholesale prices, cost estimates were reduced by about 10 percent.

Many institutions follow the plans at an even lower total cost by using larger amounts of relatively inexpensive foods, such as nonfat dry milk, flour, and cornmeal, than were assumed in estimating the cost of the plans, or by using USDA donated foods.² Costs were about 25 percent less than those shown in table 5 when selections within groups and prices paid by one group of State institutions were used in making the estimates.

Evaluating Food Served

To compare foods as served with the food plans, the following information is needed:

- Menus as served for a week—a list of all foods and beverages served with approximate sizes of servings. A menu form such as the one on page 4 would show this information. Be sure foods and amounts actually served are shown. Sometimes this may be different from that planned.
- Recipes used in the preparation of foods.
- The approximate amounts of foods as served in food plans for boys and girls and men and women of different ages (table 3 or 4).

If residents have widely different nutritional needs, the amounts served probably vary. For example, teenage boys may be allowed larger servings of meat and vegetables, larger glasses of milk or seconds, and more bread than younger boys. In such instances, amounts served to older boys should be compared with the plan for their age and amounts served to younger boys compared with the plan for their age.

In the institution that uses free-choice cafeteria or family style of service, the comparison will, of necessity, be made on the average amounts of foods served per person and the plan for the age-sex group into which most of the residents fall.

Amounts of some foods served may be known fairly accurately if the serving size is controlled through use of a standard-sized scoop or by weight. For mixed dishes, amounts of various ingredients in a serving can be estimated by dividing the total amount of the ingredient used in preparing the dish by the number of portions obtained. For some foods, the manager may need to convert amounts served to units given in tables 3 and 4. For example, a baked potato may be counted as $\frac{1}{2}$ or $\frac{3}{4}$ cup

² Charitable institutions in many localities are eligible to receive some foods free through the Food Distribution Program. Information may be obtained from Food Distribution Division, Food and Nutrition Service, U.S. Department of Agriculture, Washington, D.C. 20250.

of potato, depending on its size. Or a very large seeded roll may be judged equal to 4 slices of bread and a small dinner roll to 1 slice.

The Tuesday's menu (p. 4) is checked here against the amounts of foods included in the moderate-cost plan for the man 20 to 55 years of age to show how to evaluate foods served by this method. An experienced food manager can make a rough check such as this by adding units or servings directly from the menu.

Meat, poultry, fish, or alternates

	Amount	Units ¹
Scrambled egg	1½ egg	1½
Baked ham	2 oz. cooked lean	2
Roast beef	4 oz. cooked lean	4
Egg (Bavarian)	½ egg	½
Total		8
Moderate-cost plan		7½-8

¹ 1 unit = 1 oz. of cooked lean meat, poultry, or fish, 1 egg, $\frac{1}{2}$ cup cooked dry beans or peas, or 2 tbbsp. of peanut butter.

Vegetables and fruits

	Amount	½ cup servings
Grapefruit	About $\frac{3}{4}$ cup	1½
Tossed salad	$\frac{3}{4}$ cup	1½
Strawberry pie	$\frac{1}{2}$ cup	1
Baked potato	About $\frac{3}{4}$ cup	1½
Broccoli	About $\frac{1}{2}$ cup	1
Apple-raisin salad	$\frac{1}{2}$ cup	1
Fruit	About $\frac{1}{2}$ cup	1
Total		8½
Moderate-cost plan		5½-7

Cereal and bakery products

	Amount	Servings
Toast	2 slices	2
Large seeded roll	About 4 slices	4
Pie crust	$\frac{1}{8}$ crust	1
Bread	2 slices	2
Total		9
Moderate-cost plan		11-13

Milk

	Amount	Cups
Milk (scrambled eggs)	$\frac{1}{8}$ cup	$\frac{1}{8}$
Milk	1 cup	1
Milk	1 cup	1
Milk (Bavarian)	$\frac{1}{4}$ cup	$\frac{1}{4}$
Total		2½
Moderate-cost plan		2

Amounts for three of the four broad food groups—meat, vegetables and fruits, and milk—are as large as or a little more than the amounts for a day given in the plan. A good source of vitamin C and a dark-green vegetable are used. But servings of cereal and baked goods fall a little short of those in the plan. What does this mean?

- Meals served on Tuesday probably meet food needs of most men 20 to 55 years of age. The additional amounts of meat, milk, vegetables and fruits make up in food value for cereals and bakery products not included.
- Costs probably would be higher for the Tuesday's meals than for meals that follow the food plan more closely. The only type of food that was not served in amounts in excess of those in the plan was bread and cereals—the group of foods that tends to be the least expensive.

Such comparisons indicate ways to reduce cost and still meet food needs of residents.

Monday's menu (p. 4) is planned to be less costly than Tuesday's menu. It compares with the low-cost plan for the man as follows:

Meat, poultry, fish, or alternates

	Amount	Units
Split pea soup-----	$\frac{1}{2}$ cup cooked peas-----	1
Egg (custard)-----	$\frac{1}{3}$ egg-----	$\frac{1}{3}$
Egg (muffin)-----	$\frac{1}{6}$ egg-----	$\frac{1}{6}$
Chicken, cooked-----	4 ounces-----	4
Peanut butter-----	1 tablespoon-----	$\frac{1}{2}$
 Total-----	 6	
Low-cost plan-----	$5\frac{1}{2}$ –6	

Vegetables and fruits

	Amount	$\frac{1}{2}$ cup servings
Orange juice-----	$\frac{3}{4}$ cup-----	$1\frac{1}{2}$
Peach-----	About $\frac{1}{4}$ cup-----	$\frac{1}{2}$
Lettuce-----	1 leaf-----	
Potatoes-----	1 cup-----	2
Carrots-----	$\frac{1}{2}$ cup-----	1
Celery sticks-----	About $\frac{1}{4}$ cup-----	$\frac{1}{2}$
Cherries-----	$\frac{1}{4}$ cup-----	$\frac{1}{2}$
 Total-----	 6	
Low-cost plan-----	$5\frac{1}{2}$ –6	

Cereal and bakery products

	Amount	Servings
Cereal-----	1 cup-----	$1\frac{1}{3}$
Toast-----	3 slices-----	3
Corn muffins-----	2-----	2
Bread-----	3 slices-----	3
Cobbler-----	1 portion-----	1
Crackers-----	6-----	2
 Total-----	 $12\frac{1}{3}$	
Low-cost plan-----	$12\frac{1}{4}$	

Milk, cheese, ice cream

	Amount	Cups
Milk-----	$\frac{1}{2}$ cup-----	$\frac{1}{2}$
Milk (custard)-----	$\frac{1}{3}$ cup-----	$\frac{1}{3}$
Milk-----	1 cup-----	1
Cottage cheese-----	$\frac{1}{2}$ cup-----	$\frac{3}{8}$
Milk (potatoes)-----	$\frac{1}{8}$ cup-----	$\frac{1}{8}$
 Total-----	 $2\frac{1}{3}$	
Low-cost plan-----	2	

In this menu, amounts and kinds of foods in the four food groups are much like those in the low-cost plan. A vitamin C source, orange juice, and a vitamin A source, carrots, are included. Therefore, the nutrient needs of the man probably will be met by these meals. Also, Monday's meals will probably cost less than the Tuesday's meals that include more than the quantities for the moderate-cost plan for all except the relatively inexpensive cereal and bakery products group.

Evaluating Foods as Brought Into the Kitchen

To compare foods as brought into the kitchen with the food plans, an estimate of the total quantities of foods that would be used if the food plans were followed (food needs) and a record of all foods used in meal preparation and for snacks, including home produced and donated foods, are needed.

Estimating "food needs" using the food plan.—The quantities of foods that would be used by the institution *in a month* if the food plan were followed (food needs) may have to be figured monthly if the makeup of residents changes frequently. But for most resident institutions, food needs for a month, sometimes referred to as the "quantity ration," may be calculated only once a year. In making these calculations:

1. Determine the number of individuals in the institution in each of the age categories for which food plans are shown (table 1 or 2). If most persons fall in one category (for example, women who are 35–55 years of age) one food plan may do for all. In children's institutions, careful classification is important because of wide differences in the nutritional needs of children at various ages.

Include all persons who eat in the institution, both residents and employees. A person who eats only one meal a day at the institution counts as one-third person. The tabulation may read:

	AGE GROUP	Number in group
Children:		
3 to 6 years-----	-----	17
6 to 9 years-----	-----	25
Girls:		
9 to 12 years-----	-----	30
12 to 15 years-----	-----	10
15 to 20 years-----	-----	8
Women:		
35 to 55 years-----	-----	10

2. Point off one decimal place in the number for each sex and age group to determine the number of units of 10 persons. This is done because quantities of foods in the plans are given in tables 1 and 2 for 10 persons. For example, in the age group 3–6 above, the 17 persons will become 1.7 units of 10 persons. Or, use the count as reported and point off one decimal place in total quantities.

3. Enter the number of units of 10 persons for each sex and age group on a worksheet set up with columns similar to the sample on page 23. Multiply these figures by quantities of food suggested in the plan for the particular sex and age group. Use table 1 for the low-cost plan and table 2 for moderate-cost plan.

4. Total the figures for all the age groups. Round the totals to convenient market units. These totals represent approximate quantities of food needed for a month according to the plan selected.

An example of figuring the total quantity of food needed according to the moderate-cost food plan for a sample institution is shown in table 6, page 23.

The food plans showing quantities of foods suggested for use *in a week* for single persons are given in tables 7 and 8.

To estimate food needs *for a period other than a month or a week*, use the food plans per person per day shown in tables 9 and 10 as follows:

1. Multiply for each age and sex group the number of persons eating by the amount specified for each food group per person per day to determine the amounts needed per day by each age-sex group. Total to get the amounts of each food group per day for all persons in the institution.

2. Multiply amounts per day by the number of days covered by the record of food used.

Determining quantities of food used.—Many institutions take monthly inventories or keep perpetual inventories. If such records are kept separately for the 11 food groups (see p. 12 for food items in each group), quantities used can be obtained easily for comparison with the food plans. Sample forms such as the ones shown on pages 16-17 for recording quantities may be used.

Usually the quantities as listed as purchased for the plans represent the total of the weight of foods used in the form brought into the kitchen—fresh, canned, frozen, or dried. Exceptions are:

1. Milk products (cheese, evaporated and dry skim milk, and ice cream and ice milk) are reported in terms of fluid whole milk equated on a basis of the calcium content.

2. Concentrated fruit and vegetable juices are reported on a single-strength basis. Dehydrated potatoes are reported on a fresh basis.

3. Baked goods are reported in terms of pounds of flour.

4. Canned cooked mature beans and peas and unshelled nuts are reported on the shelled, dry-weight basis.

5. Sugar, sweetened gelatin, pudding mixtures, and soft drinks are reported on the sugar-content basis.

Amounts of these foods used should be con-

verted to an equivalent weight before they are added to other foods used in the group.

Convert dairy products to milk equivalent.—Weights of products such as cheese, evaporated or nonfat dry milk, or ice cream or ice milk must be converted to fluid milk equivalent and added to the amount of fluid milk used before the comparison with quantities in the plans can be made.

Tables 11 and 12 may be used to convert dairy products (except butter which is included as a fat in fats and oils group) to the calcium equivalent of fluid milk. The figures in column 1 represent the number of units (cans, pounds, quarts, gallons) of the product to be converted. The products and common market units for them are listed across the top. For example, to convert 30 pounds of creamed cottage cheese to its calcium equivalent in gallons of whole milk, find in table 12 the number 30 in column 1; read across the table to "cottage cheese, creamed," find "2.8," the gallons of fresh fluid milk equivalent in calcium to 30 pounds of this cottage cheese. Combinations may be made by adding together the equivalents of units of products as for 36 pounds cottage cheese, add 2.8 (equivalent for 30 pounds), 0.4 (equivalent for 4 pounds), and 0.2 (equivalent for 2 pounds).

Convert concentrated juices to single strength; dehydrated potatoes to fresh equivalent.—Net weight of ready-to-drink canned or fresh fruit and vegetable juices can be added to the appropriate vegetable and fruit group. Weights of juices purchased as canned or frozen concentrate, however, should be converted to single strength by multiplying the net weight of the concentrate by 3.7 before they are added to weights of other vegetables and fruits. That is, multiply the net weight of a can of frozen concentrated orange juice by 3.7 before adding it in. Include fruit ades, punches, and drinks and beverage powders in the sugars and sweets group (p. 16).

Multiply the net weight of dehydrated potatoes by 7 to convert to fresh-weight equivalent. Then add to amounts fresh, frozen, and canned potatoes to obtain total for the group.

Convert bakery products to flour equivalent.—Quantities suggested in the food plans for flour, cereals, and bakery products are in terms of pounds of flour equivalent. Bread and other bakery products and prepared mixes average about 60 percent flour by weight. Therefore, count 1½ pounds of bread or other bakery products used as equal to 1 pound of flour. To do this quickly, multiply the total pounds of bakery products by 0.6. Add this figure to the total for pounds of flour and cereals used. This grand total will be the pounds of flour equivalent, which can be compared with the quantities given in the plans. An example is given below:

Foods	Total used	Conversion factor	Flour equivalent
Bread and other bakery products	Pounds		Pounds
600	(\times)	0.6 (=)	360
Flour and cereals	700	(\times)	1.0 (=) 700
Prepared mixes	100	(\times)	.6 (=) 60
Total flour equivalent			1,120

Gelatin desserts, sweetened	0.8
Pudding mixes, dry	.6
Soft drinks, fruit ades, punches, and drinks	.1
Fruit ades, punches and drinks, concentrated sirups canned, bottled, or frozen	.6
Beverage powders	.9

For example, four 6-ounce packages of sweetened gelatin, 24 ounces or 1.5 pounds, would be added to sugars and sweets group as 1.2 pounds (1.5×0.8) of sugar equivalent.

For the institution that does not have a regular system of keeping records of foods used, the two types of forms shown below may be considered. Here are some tips on how to use these forms:

- Use one sheet for each of the 11 food groups.
- Identify sheets with a different color for each group, such as red for meats and yellow for citrus and tomatoes. Color codes can be made by attaching a strip of tape of different colors to sheets or by coloring in the corners of the sheets with crayons.
- Place the forms on a clipboard or on cardboard backers in a file.
- Locate the clipboard or file of forms near the place where foods are delivered or taken from storage. Sets of forms may be placed at several locations—at entrances to cold storage and canned goods supply and at delivery entrance, for example.
- Make entries as foods are brought from delivery or storage into the kitchen, bakery, or service area for use in preparing meals or snacks. Record only foods that are used, not those that are delivered and stored for later use.

FORM 1.—Record of food used

Dried beans, peas, and nuts

Period: February 1972

Date	Food used	Unit	No. of units	Weight (pounds)	Converted weight (pounds)	Cost
(1)	(2)	(3)	(4)	(5)	(6)	(7)
5-2	Pork and beans	28 oz. can	1	1.75	0.70	\$0.33
5-4	Red kidneys	1 lb.	2	2.00	2.00	.24
	Total					

Make entries on form 1 as follows:

Col. 1—Date used.

Col. 2—Kind of food used.

Col. 3—Size of unit used in net weight. See *Food Purchasing Guide for Group Feeding*, U.S. Dept. Agr., Agr. Handb. 284 for weights of purchase units not given on container.

Col. 4—Number of units used.

Col. 5—Net weight of unit (col. 3) multiplied by number of units used (col. 4). Enter weight in pounds and decimal parts of a pound.

Col. 6—Column 5 multiplied by factor for converting to equivalent basis if one is needed. (See p. 16.) If no factor is needed, enter weight from column 5.

Col. 7—Price per unit multiplied by number of units. Information on cost is not needed for comparisons with food plans. Entries in this column, however, provide a convenient way for obtaining costs of foods used separately for food groups.

FORM 2.—Record of food used

Period: Feb. 1, 1972 to Mar. 1, 1972

Food	Unit	Date	Date	Date	Date	Total No. of units	Weight (pounds) per unit	Total weight (pounds)	Conversion factor	Converted weight (pounds)
		Units	Units	Units	Units					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dried: Baby limas	1 lb.						1.00		1.0	
Blackeye peas	2 lb.						2.00		1.0	
Navy beans	2 lb.	2 2	20 2	28 1		5	2.00	10.0	1.0	10.0
Red kidneys	1 lb.						1.00		1.0	
Canned: Kidney beans	1 lb. cn.	11 5				5	1.00	5.0	.4	2.0
Peanut butter	28 oz. cn.	4 2	15 2			4	1.75	7.0	1.0	7.0
Peanut butter, chunk	18 oz. cn.						1.12		1.0	
Pork and beans	28 oz. cn.						1.75		.4	
Nuts: Large brazils in shell	16 oz.						1.00		.4	
Peanuts, shelled	9½ oz.						.59		1.0	
Pecans, shelled	1 lb.	20 1				1	1.00	1.0	1.0	1.0
Walnuts, in shell	2 lb.						2.00		.4	
Other										
Total										20.0

Prepare form 2 to include:

Col. 1—List of foods commonly used.

Col. 2—Purchase unit.

Col. 8—Weight of unit in pounds. This refers to the "net weight" of the unit. See: *Food Purchasing Guide for Group Feeding*, Agr. Handb. 284, for additional information on weights of purchase units.

Col. 10—Factors for converting foods in group to a more equivalent basis. See pp. 15 to 16.

Make entries on form as follows:

Cols. 3–6—Enter day of month above the diagonal line and the number of units used below the diagonal line.

Col. 7—Total of units used (cols. 3 to 6). Enter at end of period.

Col. 9—Column 7 multiplied by column 8.

Col. 11—Column 9 multiplied by column 10.

- Check entries on record forms for food use with the day's menu at the end of the day to see that all foods served were recorded as "used." After the system is well-established, checks may be made less frequently.
- Replace forms regularly each week or each month. This way each sheet includes the food used during exactly a 1-week or 1-month period.
- At first, recording may be done by the food manager or by one or two responsible members of the staff. After the best recording procedure for a particular institution has been decided on, all staff members who receive deliveries or get foods from supply may be trained to use forms.
- For the first period, try recording amounts used for only one of the 11 groups—meat, poultry and fish, for example.

Comparing foods used with food needs.—If the kinds and amounts of foods used are similar to those that would have been used if the food plan were followed, nutritional needs are probably being provided for, unless there are unusually large food discards and losses in cooking. Quantities of foods in the plans allow for losses as follows:

- Average quantities of refuse such as peelings, rinds, bones.
- Fat and drippings lost in cooking meat.
- Minimum amount of vitamin losses in cooking.
- Small amount of plate or kitchen waste.

Consistent and wide deviations from quantities suggested in the food plans may show up weaknesses in diets (see p. 11).

Other Uses of the Food Plans

Quantities of foods suggested in the plans can also be used as:

1. Standards for planning foods needed by the institution.
2. Goals for planning gardens, for planning production of animals for meat, or for processing of foods.
3. Estimates of future needs in making decisions for buying food in quantity.

Short Method for Calculating Nutritive Value of Diets

Calculating the nutritive value of foods used, item by item, is too time consuming to be practical for evaluating nutritional adequacy in many institutions.

For institutions with computer services, the nutritive value of the diet can be calculated using a magnetic tape or a set of punch cards that contains data on nutritive values of foods published

in Agriculture Handbook No. 8, *Composition of Foods—Raw, Processed, Prepared*, revised December 1963. Data available are those included in table 1—Composition of foods, 100 grams, edible portion; table 2—Nutrients in edible portion of 1 pound of food as purchased; and table 3—Selected fatty acids in foods.³

Fairly reliable estimates of the nutrient content of institution meals may be made by using nutritive values for the 11 food groups (table 13). These values for such food groups as a pound of meat, poultry, and fish and a pound of dark-green and deep-yellow vegetables are based on dietary patterns in the United States. That is, the meat, poultry, and fish values are a combination of the nutritive values of the items in this group weighted by the amounts of the items consumed in the United States. Weights used are shown in table 14. These nutritive values per pound of the 11 food groups were used in judging how well the quantities in the food plans, discussed earlier in this publication, met nutritional needs.

Estimating the Nutritive Value of Food Used⁴

The following steps can be used in estimating the nutritive value of food used.

1. Multiply the average nutritive value of a pound of each of the 11 food groups, shown in table 13, by the average quantity of each food group used per person per day. Methods for determining the quantities of food groups used are discussed on pages 15 to 17. If most of the baked goods, including bread, are made in the institution, use the special values given for flour, cereals and bakery products. Nutritive values for the meat, poultry, and fish group are for quantities of retail cuts. If quantities used are for carcass weight, multiply carcass weight by 0.9 to estimate the quantity of retail cuts used.

2. Total the amounts of each nutrient contributed by the food groups to obtain the nutritive value of foods used per person per day.

The nutritional adequacy of the diet can be judged by comparing the nutritive value of foods used with the average recommended dietary allowances for persons eating in the institution.

Computing Average Dietary Allowance for Institution⁵

If most of the persons eating (residents and employees) are of the same sex and about the same

³ For further information, write Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture, Federal Center Building, Hyattsville, Md. 20782.

⁴ Sample worksheet, table 15.

⁵ Sample worksheet, table 16.

age, as in a home for elderly women, the dietary allowance for that group may be used for comparison with the nutritive value of foods used. On the other hand, if the persons eating are of different ages and sexes, as in a children's home, the average recommended dietary allowance for the institution should be computed as follows:

1. Estimate the number of persons in each age and sex group for which allowances are given in table 17.

2. Multiply the number of persons in each group by recommended allowances for that group from table 17.

3. Total the quantities for each nutrient.

4. Divide the total nutrients by the total number of persons in the institution to get the average dietary allowance per person per day.

Comparing the Nutritive Value of Foods Used With Dietary Allowance

These calculated nutritive values are only rough guides in appraisal of diets. If the amount of any nutrient provided by foods used is much less than the recommended dietary allowance for that nutrient, however, some changes in the kinds and amounts of foods served should be considered. To find what kinds of foods are good sources of the needed nutrient, check table 13. For example, a pound of citrus fruits and tomatoes (in proportions used in the country as a whole) provides 119 mg. of ascorbic acid and a pound of dark-green and deep-yellow vegetables provides 92 mg.—considerably more than other groups. If diets are low in this nutrient, larger amounts of these foods could be used.

The recommended allowances refer to nutrients from foods actually eaten. Nutritive values calculated by this short method may be somewhat higher than the values of foods actually eaten because:

1. The use of good quality food and good methods of preparation and cooking are assumed. If foods reported as used are partly discarded because of poor quality, careless handling, improper storage, or excessive peeling, or if foods are improperly cooked or held on a steam table or reheated for serving, the calculated quantities of nutrients will be higher than those actually consumed. In this short method, allowance is made for inedible refuse, loss of some fat in cooking and serving of meat, and some cooking losses in five vitamins—vitamin A value, thiamine, riboflavin, niacin, and ascorbic acid—assuming proper cooking methods.

2. The nutritive values of discarded leftovers and plate wastes are included in calculations, even though these foods are not actually eaten. To account for discards, calculated values of foods used should be higher than the recommended allowances. The food manager will need to judge how much higher, depending on the amounts of discards in the institution.

3. The institution is assumed to select foods within each food group in proportions similar to U.S. dietary patterns as indicated by the national food supply and surveys of food consumption (table 14). Because each of the food groups contain foods with similar nutrient-giving qualities, the proportions within the groups used in institutions may be somewhat different from those used in deriving the group values without affecting the nutritive value of the group to a great degree.

If proportions are widely different, however, values for the group may not be appropriate. For example, if only tomatoes are used from the citrus fruit and tomatoes group, the vitamin C in the diet will be overestimated. The reason for this is that citrus fruits, which provide more vitamin C than tomatoes, made up over half the group in deriving the group nutritive value. Or, if only deep-yellow vegetables are used and no dark-green ones, the iron content of the diet will be overestimated. While both dark-green and deep-yellow vegetables are rich in vitamin A value, the dark-green provide more iron.

APPENDIX

Tables

TABLE 1.—*FOOD PLAN AT LOW COST: Suggested quantities of food¹ (as purchased) for 10 persons for 30 days (4½ weeks), for girls and boys and women and men of different ages, and for pregnant and lactating women*

(1)	Sex and age ²	Meat, poultry, fish, ³ If most meats are purchased by—			Dry beans, peas, nuts			Milk, cheese, ice cream ⁴			Dark-green and deep-yellow vegetables ⁶			Citrus fruit, tomatoes ⁶			Other vegetables and fruits ⁶			Flour, cereals, bakery products ⁷			Fats, oils ⁴			Sugars, sweets ⁴			For institutions with bake shops					
		Carcass weight	Retail weight	Portion size	Eggs ⁴	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)				
Children:					Lbs.	Lbs.	Doz.	Lbs.	Gal.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.				
1 to 3 years—		80	75	65	18	18	3	45	10	65	30	95	65	11	20	44	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15			
3 to 6 years—		95	85	70	18	18	5	45	10	75	55	140	85	16	20	45	20	20	20	22	22	22	22	22	22	22	22	22	22	22	22			
6 to 9 years—		105	95	80	21	11	45	20	85	95	180	120	21	27	25	45	27	27	27	35	35	35	35	35	35	35	35	35	35	35	35			
Girls:																																		
9 to 12 years—		115	105	90	25	16	60	30	95	95	215	105	21	27	28	61	27	27	27	34	34	34	34	34	34	34	34	34	34	34	34			
12 to 15 years—		115	105	90	25	16	75	45	95	105	215	120	21	32	29	77	27	27	27	40	40	40	40	40	40	40	40	40	40	40	40			
15 to 20 years—		130	120	100	25	16	75	55	95	95	205	105	16	27	28	77	21	21	21	34	34	34	34	34	34	34	34	34	34	34	34			
Boys:																																		
9 to 12 years—		115	105	90	21	16	60	30	85	105	215	130	21	32	25	61	28	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41		
12 to 15 years—		115	105	90	21	16	75	30	85	140	225	180	32	32	27	79	41	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45		
15 to 20 years—		165	150	130	21	16	75	30	85	180	235	205	38	38	27	79	48	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52		
Women:																																		
20 to 35 years—		155	140	120	25	16	40	65	75	85	215	105	16	27	28	40	21	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34		
35 to 55 years—		155	140	120	25	16	40	65	75	65	195	95	11	27	28	39	16	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34		
55 to 75 years—		115	105	90	18	11	40	45	85	85	160	85	11	16	20	39	15	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22		
75 years and over—		105	95	80	18	11	40	45	85	55	130	65	11	11	20	39	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
Pregnant—		175	160	135	25	16	60	85	140	65	235	120	16	16	29	61	22	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Lactating—		175	160	135	25	16	85	65	140	140	235	160	27	27	30	89	35	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38		
Men:																																		
20 to 35 years—		165	150	130	21	16	40	30	75	140	235	180	32	27	41	41	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56		
35 to 55 years—		155	140	120	21	11	40	30	75	95	195	120	27	27	25	40	33	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35		
55 to 75 years—		145	130	110	21	11	40	30	75	130	215	160	27	27	25	40	33	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35		
75 years and over—		130	120	100	21	11	40	30	65	85	180	105	21	21	25	40	27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	

¹ In the development of these plans the following criteria were applied: (1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of different food groups; and (3) the suitability of the food in relation to food practices in institutions and meal patterns common in the United States.

² Age groups include the persons of the first age listed up to but not including those of the second age listed.

³ Bacon and salt pork should not exceed ½ pound for each 5 pounds of meat group.

⁴ In quantities given in cols. 5, 7, 13, and 14, purchases of some bakery products including bread are assumed. In institutions that have their own bake shops, quantities of milk, eggs, fat, and sugar may be increased as shown in cols. 15 through 18.

⁵ Quantities shown are for fluid milk or its equivalent in calcium in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain

less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principal source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁶ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁷ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 2.—*FOOD PLAN AT MODERATE COST: Suggested quantities of food¹ (as purchased) for 10 persons for 30 days (4½ weeks), for girls and boys and women and men of different ages, and for pregnant and lactating women*

Sex and age ²	Meat, poultry, fish, ³ If most meats are purchased by—				Dry beans, peas, nuts				Milk cheese, ice cream ⁴				Dark-green and deep- yellow vege- tables ⁶				Citrus fruit, tomato- toes				Other vege- tables fruits ⁶				Flour, cereals, bakery products ⁷				Fats, oils ⁴				Sugars, sweets ⁴				For institutions with bake shops			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)																						
Children:					Lb.	Lb.	Doz.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Doz.	Gal.	Lb.	Lb.																						
1 to 3 years-----	105	95	80	55	10	65	30	120	55	11	11	23	55	13	14																									
3 to 6 years-----	130	120	100	55	10	85	45	170	75	16	21	24	55	20	27																									
6 to 9 years-----	155	140	120	55	20	95	75	205	105	27	38	28	56	32	45																									
Girls:																																								
9 to 12 years-----	200	180	155	25	11	60	30	105	85	235	105	21	32	28	61	27	40																							
12 to 15 years-----	215	195	165	25	11	75	45	105	95	245	105	32	38	28	77	37	45																							
15 to 20 years-----	215	195	165	25	11	75	55	105	85	235	95	21	32	28	77	26	39																							
Boys:																																								
9 to 12 years-----	200	180	155	25	11	60	30	95	95	235	120	27	38	29	61	33	46																							
12 to 15 years-----	225	205	175	25	11	75	30	95	130	255	170	38	43	30	78	46	55																							
15 to 20 years-----	250	225	190	25	16	75	30	105	170	280	195	48	48	31	79	58	62																							
Women:																																								
20 to 35 years-----	225	205	175	29	11	40	65	95	65	245	95	21	38	31	39	26	44																							
35 to 55 years-----	225	205	175	29	11	40	65	95	55	215	95	16	21	31	39	21	28																							
55 to 75 years-----	200	180	155	21	5	40	30	95	55	180	65	16	21	23	39	19	26																							
75 years and over-----	165	150	130	21	5	40	30	95	55	160	65	11	21	23	39	13	25																							
Pregnant:																																								
260	235	200	200	29	11	60	85	140	65	245	120	32	32	31	61	22	30																							
Lactating:																																								
Men:																																								
20 to 35 years-----	235	215	180	25	11	40	30	95	130	280	170	43	54	30	41	51	66																							
35 to 55 years-----	225	205	175	25	11	40	30	95	105	245	150	38	43	30	41	45	53																							
55 to 75 years-----	215	195	165	25	5	40	30	95	95	235	105	32	38	28	40	37	45																							
75 years and over-----	215	195	165	25	5	40	30	95	85	225	95	21	32	28	39	26	39																							

¹ In the development of these plans the following criteria were applied: (1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of different food groups; and (3) the suitability of the food in relation to food practices in institutions and meal patterns common in the United States. ² Age groups include the persons of the first age listed up to but not including those of the second age listed. ³ Bacon and salt pork should not exceed ½ pound for each 5 pounds of meat group. ⁴ In quantities given in cols. 5, 7, 13, and 14, purchases of some bakery products including bread are assumed. In institutions that have their own bake shops, quantities of milk, eggs, fat, and sugar may be increased as shown in cols. 15 through 18. ⁵ Quantities shown are for fluid milk or its equivalent in calcium in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain

less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principal source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁶ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁷ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 3.—*FOOD PLAN AT LOW COST: Approximate amounts of foods as served¹ per person per day*

Kind of food ²	Unit	Child	Child	Girl	Boy	Woman		Man	
		1 to 6 years ³	6 to 12 years ³	12 to 20 years	12 to 20 years	20 to 55 years	55 years and over	20 to 55 years	55 years and over
Meat, poultry, fish, or alternates.	1 oz. cooked lean meat, 1 egg, $\frac{1}{2}$ cup cooked dry beans, or 2 tbsp. peanut butter. ⁴	3 to $3\frac{1}{2}$	4 to $4\frac{1}{2}$	$4\frac{1}{2}$ to 5	$4\frac{1}{2}$ to 6	$5\frac{1}{2}$ to 6	$3\frac{1}{2}$ to $4\frac{1}{2}$	$5\frac{1}{2}$ to 6	$4\frac{1}{2}$ to $5\frac{1}{2}$
Milk, cheese, ice cream, ice milk.	1 8-oz. cup of milk as beverage or in cooking or cheese or ice cream. ⁵	2 $\frac{1}{4}$	2 $\frac{1}{4}$ to 3	4	4	.2	2	2	2
Vegetables and fruits.	$\frac{1}{2}$ cup or equivalent vegetable or fruit as served. ⁶	2 to $3\frac{1}{2}$	$4\frac{1}{2}$ to $5\frac{1}{2}$	5 to 6	$5\frac{1}{2}$ to $6\frac{1}{2}$	$4\frac{1}{2}$ to $5\frac{1}{2}$	$3\frac{1}{2}$ to $4\frac{1}{2}$	5 to 6	4 to 5
Cereal and bakery products.	1 slice of bread or other bakery products with equal flour; 1 oz. ready-to-eat cereal; or $\frac{3}{4}$ cup cooked cereal or cereal product.	5 to 7	8 to 9	8 to 9	14 to 16	7 to 8	5 to 7	12 to 14	8 to 9

¹ Allows for some plate waste.² Amounts of fats and oils and sugars and sweets as served are not given. Total amounts as purchased for the week included in the plans are shown in tables 7 and 8.³ Small amount is for younger children.⁴ For persons over 6 years using the low-cost plan, include 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ units of dry beans, peas, and peanut butter and 5 to 7 eggs per week.⁵ One-half cup of milk can be replaced by a 1-in. cube of cheddar-type cheese, $\frac{1}{2}$ cup of cottage cheese, 1 cup of ice cream, or $\frac{2}{3}$ cup of ice milk.⁶ Include one good source of vitamin C, such as citrus fruit or juice, or two fair sources each day and a dark-green or deep-yellow vegetable every other day. Servings for young children may be a little less than $\frac{1}{2}$ cup. More or larger servings of dark-green vegetables are recommended for teenage girls and women under 55 years of age.TABLE 4.—*FOOD PLAN AT MODERATE COST: Approximate amounts of foods as served¹ per person per day*

Kind of food ²	Unit	Child	Child	Girl	Boy	Woman		Man	
		1 to 6 years ³	6 to 12 years ³	12 to 20 years	12 to 20 years	20 to 55 years	55 years and over	20 to 55 years	55 years and over
Meat, poultry, fish, or alternates.	1 oz. cooked lean meat, 1 egg, $\frac{1}{2}$ cup cooked dry beans, or 2 tbsp. peanut butter. ⁴	3 $\frac{1}{2}$ to $4\frac{1}{2}$	5 to 7	7	7 to 8	7 $\frac{1}{2}$	$5\frac{1}{2}$ to $6\frac{1}{2}$	7 $\frac{1}{2}$ to 8	7 to 7
Milk, cheese, ice cream, ice milk.	1 8-oz. cup of milk as beverage or in cooking or cheese or ice cream. ⁵	3 (scant)	3	4	4	2	2	2	2
Vegetables and fruits.	$\frac{1}{2}$ cup or equivalent vegetable or fruit as served. ⁶	2 $\frac{1}{2}$ to 4	$4\frac{1}{2}$ to 6	$5\frac{1}{2}$ to $6\frac{1}{2}$	6 to 7 $\frac{1}{2}$	5 to 6	4 to $4\frac{1}{2}$	$5\frac{1}{2}$ to 7	5 to 6
Cereal and bakery products.	1 slice of bread or other bakery products with equal flour; 1 oz. ready-to-eat cereal; or $\frac{3}{4}$ cup cooked cereal or cereal product.	4 to 6	8 to 9	7 to 8	13 to 15	7 to 8	4 to 5	11 to 13	7 to 8

¹ Allows for some plate waste.² Amounts of fats and oils and sugars and sweets as served are not given. Total amounts as purchased for the week included in the plans are shown in tables 7 and 8.³ Smaller amount is for younger children.⁴ For persons over 6 years using the moderate-cost plan, include $\frac{2}{3}$ to 1 $\frac{1}{2}$ units of dry beans, peas, and peanut butter and 6 to 7 eggs per week.⁵ One-half cup of milk can be replaced by a 1-in. cube of cheddar-type cheese, $\frac{1}{2}$ cup of cottage cheese, 1 cup of ice cream, or $\frac{2}{3}$ cup of ice milk.⁶ Include one good source of vitamin C, such as citrus fruit or juice, or two fair sources each day and a dark-green or deep-yellow vegetable every other day. Servings for young children may be a little less than $\frac{1}{2}$ cup. More or larger servings of dark-green vegetables are recommended for teenage girls and women under 55 years of age.

TABLE 5.—*Cost of food in food plans estimated for small institutions using retail markets,¹ March 1972, U.S. average*

Sex and age ²	Cost for 1 month		Sex and age ²	Cost for 1 month	
	Low-cost plan	Moderate-cost plan		Low-cost plan	Moderate-cost plan
Children:			Women:		
1 to 3 years-----	Dollars 18. 40	Dollars 23. 50	20 to 35 years-----	Dollars 31. 80	Dollars 40. 70
3 to 6 years-----	22. 10	28. 60	35 to 55 years-----	30. 50	39. 20
6 to 9 years-----	26. 60	34. 60	55 to 75 years-----	25. 80	33. 70
Girls:			75 years and over-----	23. 40	29. 90
9 to 12 years-----	30. 20	39. 80	Pregnant-----	37. 80	47. 40
12 to 15 years-----	33. 80	44. 10	Lactating-----	43. 80	54. 50
Boys:			Men:		
9 to 12 years-----	31. 40	40. 60	20 to 35 years-----	36. 70	46. 90
12 to 15 years-----	36. 70	48. 60	35 to 55 years-----	34. 10	43. 60
15 to 20 years-----	42. 50	54. 10	55 to 75 years-----	30. 20	39. 40
			75 years and over-----	28. 30	38. 00

¹ In these estimates, small institutions are assumed to buy and serve foods as large families do. Quantities of foods used are those in food plans shown in tables 7 and 8. Selections of foods within food groups were assumed to be similar to those made by urban survey households at two selected income levels in 1965. Prices paid in 1965 were adjusted to current levels by use of *Retail Food Prices by Cities* released by the Bureau of Labor Statistics.

² Age groups include the persons of the first age listed up to but not including those of the second age listed.

Note.—Current cost estimates are available from Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture, Hyattsville, Md. 20782.

TABLE 6.—*Computation of food needs for 30 days in an institution using the moderate-cost plan*
[Sample worksheet]

Sex and age	Units of 10 persons	Meat, poultry, fish	Eggs	Dry beans, peas, nuts	Milk, cheese, ice cream ¹	Dark-green and deep-yellow vegetables	Citrus fruit, tomatoes	Potatoes	Other vegetables and fruits	Flour, cereals, bakery products ²	Fats, oils	Sugars, sweets
Children:	No.	Lb.	Doz.	Lb.	Gal.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
3 to 6 years-----	1. 7	204	36	5	94	17	144	76	289	128	27	36
6 to 9 years-----	2. 5	350	62	12	138	50	238	188	512	262	68	95
Girls:												
9 to 12 years-----	3. 0	540	75	33	180	90	315	255	705	315	63	96
12 to 15 years-----	1. 0	195	25	11	75	45	105	95	245	105	32	38
15 to 20 years-----	. 8	156	20	9	60	44	84	68	188	76	17	26
Women:												
20 to 35 years-----	1. 0	205	29	11	40	65	95	65	245	95	21	38
Total for 30 days-----	1, 650	247	81	587	311	981	747	2, 184	981	228	329	
Round to-----	1, 650	245	80	585	310	980	745	2, 185	980	230	330	

¹ For fluid milk or its equivalent in calcium in cheese, evaporated milk, dry milk, and ice cream.

² In terms of flour and cereal.

TABLE 7.—*FOOD PLAN AT LOW COST: Suggested quantities of food¹ (as purchased) for 1 person for 7 days, for girls and boys and women and men of different ages, and for pregnant and lactating women*

Sex and age ²	Meat, poultry, fish ³	Eggs	Dry beans, peas, nuts	Milk, cheese, ice cream ⁴	Dark- green and deep- yellow vege- tables ⁵	Citrus fruit, toma- toes	Pota- toes	Other vege- tables and fruits ⁵	Flour, cereals, baked goods ⁶	Fats, oils	Sugars, sweets
Children:											
1 to 3 years-----	Lb. 1	Oz. 12	No. 5	Oz. 1	Qt. 4	Lb. 0	Oz. 4	Lb. 1	Oz. 8	Lb. 2	Oz. 4
3 to 6 years-----	2	0	5	2	4	0	4	1	12	1	4
6 to 9 years-----	2	4	6	4	4	0	8	2	0	3	4
Girls:											
9 to 12 years-----	2	8	7	6	5½	0	12	2	4	5	0
12 to 15 years-----	2	8	7	6	7	1	0	2	4	5	0
15 to 20 years-----	2	12	7	6	7	1	4	2	4	4	12
Boys:											
9 to 12 years-----	2	8	6	6	5½	0	12	2	0	5	0
12 to 15 years-----	2	8	6	6	7	0	12	2	0	5	4
15 to 20 years-----	3	8	6	6	7	0	12	2	0	4	4
Women:											
20 to 35 years-----	3	4	7	6	3½	1	8	1	12	2	8
35 to 55 years-----	3	4	7	6	3½	1	8	1	12	1	8
55 to 75 years-----	2	8	5	4	3½	1	0	2	0	1	4
75 years and over--	2	4	5	4	3½	1	0	2	0	1	4
Pregnant-----	3	12	7	6	5½	2	0	3	4	5	8
Lactating-----	3	12	7	6	8	1	8	3	4	5	8
Men:											
20 to 35 years-----	3	8	6	6	3½	0	12	1	12	3	4
35 to 55 years-----	3	4	6	6	3½	0	12	1	12	5	0
55 to 75 years-----	3	0	6	4	3½	0	12	1	12	4	8
75 years and over--	2	12	6	4	3½	0	12	1	8	2	8

¹ In the development of these plans, the following criteria were applied: (1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of different food groups; and (3) the suitability of the food in relation to food practices in institutions and meal patterns common in the United States.

² Age groups include the persons of the first age listed up to but not including those of the second age listed.

³ Quantities are for retail cuts of meat. Bacon and salt pork should not exceed $\frac{1}{3}$ pound for each 5 pounds of meat group.

⁴ Quantities shown are for fluid milk or its equivalent in calcium in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts

of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principle source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁵ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁶ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 8.—*FOOD PLAN AT MODERATE COST: Suggested quantities of food¹ (as purchased) for 1 person for 7 days, for girls and boys and women and men of different ages, and for pregnant and lactating women*

Sex and age ²	Meat, poul- try, fish ³	Eggs	Dry beans, peas, nuts	Milk, cheese, ice cream ⁴	Dark- green and deep- yellow vege- tables ⁵	Citrus fruit, toma- toes	Pota- toes	Other vege- tables and fruits ⁵	Flour, cereals, baked goods ⁶	Fats, oils	Sugars, sweets
Children:											
1 to 3 years-----	2 4	6	1	5	0 4	1 8	0 12	2 12	1 4	0 4	0 4
3 to 6 years-----	2 12	6	1	5	0 4	2 0	1 0	4 0	1 12	0 6	0 8
6 to 9 years-----	3 4	7	2	5	0 8	2 4	1 12	4 12	2 8	0 10	0 14
Girls:											
9 to 12 years-----	4 4	7	4	5½	0 12	2 8	2 0	5 8	2 8	0 8	0 12
12 to 15 years-----	4 8	7	4	7	1 0	2 8	2 4	5 12	2 8	0 12	0 14
15 to 20 years-----	4 8	7	4	7	1 4	2 8	2 0	5 8	2 4	0 8	0 12
Boys:											
9 to 12 years-----	4 4	7	4	5½	0 12	2 4	2 4	5 8	2 12	0 10	0 14
12 to 15 years-----	4 12	7	4	7	0 12	2 4	3 0	6 0	4 0	0 14	1 0
15 to 20 years-----	5 4	7	6	7	0 12	2 8	4 0	6 8	4 8	1 2	1 2
Women:											
20 to 35 years-----	4 12	8	4	3½	1 8	2 4	1 8	5 12	2 4	0 8	0 14
35 to 55 years-----	4 12	8	4	3½	1 8	2 4	1 4	5 0	2 4	0 6	0 8
55 to 75 years-----	4 4	6	2	3½	0 12	2 4	1 4	4 4	1 8	0 6	0 8
75 years and over---	3 8	6	2	3½	0 12	2 4	1 0	3 12	1 4	0 4	0 8
Pregnant-----	5 8	8	4	5½	2 0	3 4	1 8	5 12	2 12	0 6	0 8
Lactating-----	5 8	8	4	8	1 8	3 8	2 12	6 4	3 12	0 12	0 12
Men:											
20 to 35 years-----	5 0	7	4	3½	0 12	2 4	3 0	6 8	4 0	1 0	1 4
35 to 55 years-----	4 12	7	4	3½	0 12	2 4	2 8	5 12	3 8	0 14	1 0
55 to 75 years-----	4 8	7	2	3½	0 12	2 4	2 4	5 8	2 8	0 12	0 14
75 years and over---	4 8	7	2	3½	0 12	2 4	2 0	5 4	2 4	0 8	0 12

¹ In the development of these plans, the following criteria were applied: (1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of different food groups; and (3) the suitability of the food in relation to food practices in institutions and meal patterns common in the United States.

² Age groups include the persons of the first age listed up to but not including those of the second age listed.

³ Quantities are for retail cuts of meat. Bacon and salt pork should not exceed $\frac{1}{3}$ pound for each 5 pounds of meat group.

⁴ Quantities shown are for fluid milk or its equivalent in calcium in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts

of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principle source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁵ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁶ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 9.—*FOOD PLAN AT LOW COST: Suggested quantities of food¹ (as purchased) for 1 person for 1 day, for girls and boys and women and men of different ages, and for pregnant and lactating women*

Sex and age ²	Meat, poultry, fish ³ . If most meats are purchased by—				Dry beans, peas, nuts				Milk, cheese, ice cream ⁴				Dark-green and deep-yellow vegetables ⁵				Citrus fruit, tomatoes ⁶				Potatoes				Other vegetables, bakery products ⁷				Flour, cereals, oils ⁸				Fats, oils				Sugars, sweets ⁹				For institutions with bake shops			
	Carcass weight	Retail weight	Portion size	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)						
Children:																																												
1 to 3 years	.028	.025	.021	Lb.	Doz.	Lb.	Gal.	0.04	0.21	Lb.	Lb.	0.21	0.04	0.32	0.11	0.25	.18	.46	.29	.05	0.04	0.07	0.15	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05						
3 to 6 years	.32	.29	.25					.06	.01																																			
6 to 9 years	.35	.32	.27					.07	.04																																			
Girls:																																												
9 to 12 years	.40	.36	.31					.08	.05																																			
12 to 15 years	.40	.36	.31					.08	.05																																			
15 to 20 years	.43	.39	.33					.08	.05																																			
Boys:																																												
9 to 12 years	.40	.36	.31					.07	.05																																			
12 to 15 years	.40	.36	.31					.07	.05																																			
15 to 20 years	.55	.50	.42					.07	.05																																			
Women:																																												
20 to 35 years	.51	.46	.39					.08	.05																																			
35 to 55 years	.51	.46	.39					.08	.05																																			
55 to 75 years	.40	.36	.31					.06	.04																																			
75 years and over	.35	.32	.27					.06	.04																																			
Pregnant	.59	.54	.46					.08	.05																																			
Lactating	.59	.54	.46					.08	.05																																			
Men:																																												
20 to 35 years	.55	.50	.42					.07	.05																																			
35 to 55 years	.51	.46	.39					.07	.05																																			
55 to 75 years	.47	.43	.37					.07	.04																																			
75 years and over	.43	.39	.33					.07	.04																																			

¹ In the development of these plans, the following criteria were applied: (1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of different food groups; and (3) the suitability of the food in relation to food practices in institutions and meal patterns common in the United States. ² Age groups include the persons of the first age listed up to but not including those of the second age listed. ³ Bacon and salt pork should not exceed $\frac{1}{3}$ pound for each 5 pounds of meat group. ⁴ In quantities given in cols. 5, 7, 13, and 14, purchases of some baked products including bread are assumed. In institutions that have their own bakery shops, quantities of milk, eggs, fat, and sugar may be increased as shown in cols. 15 through 18. ⁵ Quantities shown are for fluid milk or its equivalent in calcium, in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain

less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principal source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁶ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁷ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 10.—*FOOD PLAN AT MODERATE COST: Suggested quantities of food¹ (as purchased) for 1 person for 1 day, for girls and boys and women and men of different ages, and for pregnant and lactating women*

Sex and age ² (1)	Meat, poultry, fish ³ If most meats are purchased				Dry beans, peas, nuts				Milk, cheese, ice cream ⁴				Dark-green citrus fruit, tomatoes, vegetables ⁶				Potatoes				Other vegetables, bakery products ⁷				Flour, cereals, bakery products ⁸				Fats, oils ⁴				Sugars, sweets ⁴				For institutions with bake shops			
	Carcass weight (2)	Retail weight (3)	Portion size (4)	Eggs ⁴ (5)	Dry beans, peas, nuts (6)	Lb. Doz. Lb. (7)	Lb. Doz. Lb. (8)	Gal. Lb. (9)	Lb. Doz. Lb. (10)	Lb. Doz. Lb. (11)	Lb. Doz. Lb. (12)	Lb. Doz. Lb. (13)	Lb. Doz. Lb. (14)	Lb. Doz. Lb. (15)	Eggs Gallons (16)	Milk, cheese, ice cream ⁵ (17)	Eggs Gallons (18)	Fats, oils (19)	Sugars, sweets (20)	Milk, cheese, ice cream ⁵ (21)	Fats, oils (22)	Sugars, sweets (23)	Eggs Gallons (24)	Milk, cheese, ice cream ⁵ (25)	Fats, oils (26)	Sugars, sweets (27)														
Children:																																								
1 to 3 years-----	0.35	0.32	0.27	0.07	0.01	0.18	0.04	.18	0.21	0.11	0.39	0.18	0.04	0.04	0.08	0.18	0.04	0.04	0.08	0.18	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05											
3 to 6 years-----	.43	.39	.33	.07	.01	.18	.04	.07	.29	.14	.57	.25	.05	.07	.08	.18	.07	.18	.07	.18	.07	.18	.09	.09	.09	.09	.09	.09												
6 to 9 years-----	.51	.46	.39	.08	.02	.18	.07	.07	.32	.25	.68	.36	.09	.12	.09	.19	.19	.11	.11	.19	.11	.11	.15	.15	.15	.15	.15	.15												
Girls:																																								
9 to 12 years-----	.67	.61	.52	.08	.04	.20	.11	.36	.29	.79	.36	.07	.11	.11	.09	.20	.09	.20	.09	.20	.09	.13	.13	.13	.13	.13	.13	.13	.13											
12 to 15 years-----	.70	.64	.54	.08	.04	.25	.14	.36	.32	.82	.36	.11	.12	.12	.09	.26	.12	.26	.12	.26	.12	.15	.15	.15	.15	.15	.15	.15	.15											
15 to 20 years-----	.70	.64	.54	.08	.04	.25	.18	.36	.29	.79	.32	.07	.11	.11	.09	.26	.09	.26	.09	.26	.09	.13	.13	.13	.13	.13	.13	.13	.13											
Boys:																																								
9 to 12 years-----	.67	.61	.52	.08	.04	.20	.11	.32	.32	.79	.39	.09	.12	.10	.10	.20	.11	.11	.10	.20	.11	.11	.15	.15	.15	.15	.15	.15	.15											
12 to 15 years-----	.75	.68	.58	.08	.04	.25	.11	.32	.43	.86	.57	.12	.14	.10	.10	.26	.15	.15	.10	.26	.15	.18	.18	.18	.18	.18	.18	.18	.18											
15 to 20 years-----	.82	.75	.64	.08	.05	.25	.11	.36	.57	.93	.64	.16	.16	.10	.10	.26	.19	.19	.10	.26	.19	.21	.21	.21	.21	.21	.21	.21	.21											
Women:																																								
20 to 35 years-----	.75	.68	.58	.10	.04	.12	.21	.32	.21	.82	.32	.07	.12	.10	.10	.13	.09	.09	.15	.13	.09	.09	.09	.09	.09	.09	.09	.09	.09											
35 to 55 years-----	.75	.68	.58	.10	.04	.12	.21	.32	.18	.71	.32	.05	.07	.07	.07	.13	.07	.07	.13	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07											
55 to 75 years-----	.67	.61	.52	.07	.02	.12	.11	.32	.18	.61	.21	.05	.07	.07	.07	.08	.06	.06	.08	.08	.06	.06	.06	.06	.06	.06	.06	.06	.06											
75 years and over-----	.55	.50	.42	.07	.02	.12	.11	.32	.14	.54	.18	.04	.07	.07	.07	.08	.04	.04	.08	.08	.04	.04	.04	.04	.04	.04	.04	.04	.04											
Pregnant-----	.87	.79	.67	.10	.04	.20	.29	.46	.21	.82	.39	.05	.07	.11	.11	.20	.07	.07	.10	.11	.20	.07	.10	.10	.10	.10	.10	.10	.10											
Lactating-----	.87	.79	.67	.10	.04	.28	.21	.50	.39	.89	.54	.11	.11	.11	.11	.30	.13	.13	.13	.30	.13	.14	.14	.14	.14	.14	.14	.14	.14											
Men:																																								
20 to 35 years-----	.78	.71	.60	.08	.04	.12	.11	.32	.43	.93	.57	.14	.18	.10	.10	.14	.17	.22	.17	.17	.17	.22	.22	.22	.22	.22	.22	.22	.22											
35 to 55 years-----	.75	.68	.58	.08	.04	.12	.11	.32	.36	.82	.50	.12	.14	.10	.10	.14	.15	.18	.15	.15	.18	.18	.18	.18	.18	.18	.18	.18	.18											
55 to 75 years-----	.70	.64	.54	.08	.02	.12	.11	.32	.32	.79	.36	.11	.12	.09	.09	.13	.12	.12	.12	.09	.13	.12	.12	.12	.12	.12	.12	.12	.12											
75 years and over-----	.70	.64	.54	.08	.02	.12	.11	.32	.29	.75	.32	.07	.11	.11	.09	.13	.09	.13	.09	.13	.09	.13	.09	.13	.09	.13	.09	.13	.09											

¹ In the development of these plans, the following criteria were applied:
(1) Nutritional adequacy, National Research Council's *Recommended Dietary Allowances*, 6th ed., 1964; (2) the relative nutritional economy of practices in institutions and meal patterns common in the United States.

² Age groups include the persons of the first age listed up to but not including those of the second age listed.

³ Bacon and salt pork should not exceed $\frac{1}{3}$ pound for each 5 pounds of meat group.

⁴ In quantities given in cols. 5, 7, 13, and 14, purchases of some bakery products including bread are assumed. In institutions that have their own bake shops, quantities of milk, eggs, fat, and sugar may be increased as shown in cols. 15 through 18.

⁵ Quantities shown are for fluid milk or its equivalent in calcium in cheese, evaporated milk, nonfat dry milk, ice cream, or ice milk. (See p. 15 for factors to convert milk products to milk equivalent.) If whole fluid milk is completely replaced by skim milk or nonfat dry milk, diets will contain

less vitamin A value and fat. Food other than milk in the plan provides for recommended amounts of vitamin A value, but amounts of fats and oils used may need to be increased slightly to keep calorie content of diets in line with allowances when only nonfat milks are used. The fat in whole fluid milk contains small amounts of vitamin D, and some fluid milk is fortified with additional amounts. If milk has been counted on as a principal source of this vitamin, extra vitamin D in addition to that received from sunshine and other foods may be needed by children and pregnant and nursing women when nonfat dry milk is used exclusively.

⁶ Quantities allow for some fresh and some canned or frozen vegetables and fruits. If large amounts of fresh vegetables and fruits that have a high percentage of refuse—corn on the cob, peas and lima beans in the pod, melons—are used, the total quantities in these groups may need to be increased by as much as 50 to 75 percent.

⁷ Weight in terms of flour and cereal. (See p. 15 for factors to convert bakery products to flour and cereal equivalent.)

TABLE 11.—Conversion of dairy products to calcium equivalent of fresh fluid milk
[Quarts of fresh fluid milk]

Units of product	Milk			Cream			Ice milk (gal.)	Ice cream, 12 percent fat (gal.)	Cottage cheese		Cream cheese (lb.)	American cheese		
	Evaporated		Pounds nonfat dry	Quarts half and half	Quarts light	Quarts heavy			Pounds creamed	Pounds uncreamed		Pounds processed	Pounds natural	
	14½ oz. No. 10 can can	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Quarts 0.9	Quarts 8.0	Quarts 5.2	Quarts 0.9	Quarts 0.9	Quarts 0.6	Quarts 3.2	Quarts 2.2	Quarts 0.4	Quarts 0.4	Quarts 0.2	Quarts 2.7	Quarts 3.0	
2	1.8	16.0	10.4	1.8	1.7	1.2	6.4	4.4	.7	.7	.5	5.5	5.9	
4	3.6	31.6	20.8	3.6	3.4	2.5	12.8	8.7	1.5	1.4	1.0	11.0	11.8	
6	5.4	47.6	31.2	5.5	5.1	3.7	19.2	13.1	2.2	2.1	1.5	16.5	17.7	
8	7.2	63.6	41.6	7.3	6.9	5.0	25.6	17.5	3.0	2.8	2.0	22.0	23.7	
10	9.0	79.6	52.0	9.1	8.6	6.2	32.0	21.8	3.7	3.5	2.4	27.5	29.6	
20	18.0	158.8	104.0	18.2	17.1	12.4	64.0	43.7	7.4	7.1	4.9	55.0	59.2	
30	27.0	238.4	155.9	27.4	25.7	18.6	96.0	65.5	11.1	10.6	7.3	82.5	88.7	
40	36.0	318.0	207.8	36.5	34.3	24.8	128.0	87.3	14.8	14.2	9.8	110.0	118.3	
50	45.0	397.6	259.8	45.6	42.9	31.0	160.0	109.2	18.5	17.7	12.2	137.5	147.9	
60	54.1	476.3	311.7	54.7	51.4	37.3	192.0	131.0	22.2	21.3	14.7	165.0	177.5	
70	63.1	556.4	363.7	63.9	60.0	43.5	224.0	152.8	25.9	24.8	17.1	192.5	207.1	
80	72.1	636.0	415.6	73.0	68.6	49.7	256.0	174.7	29.6	28.4	19.5	220.0	236.7	
90	81.1	715.6	467.6	82.1	77.2	55.9	288.0	196.5	33.3	31.9	22.0	247.5	266.2	
100	90.1	794.8	519.5	91.2	85.7	62.1	320.0	218.4	37.0	35.5	24.4	275.0	295.8	

How to use:

- Locate the column of the table which identifies the dairy product and unit of purchase.
- Proceed down the column to the figure horizontal to the number of units issued shown in col. (1).
- This figure represents the quarts of milk equivalent of the dairy product to be added to equivalents of other dairy products and gallons of fluid milk to give total quarts of milk for comparison with food plans.

TABLE 12.—Conversion of dairy products to calcium equivalent of fresh fluid milk
[Gallons of fresh fluid milk]

Units of product	Milk			Cream			Ice milk (gal.)	Ice cream, 12 percent fat (gal.)	Cottage cheese		Cream cheese (lb.)	American cheese		
	Evaporated		Pounds nonfat dry	Quarts half and half	Quarts light	Quarts heavy			Pounds creamed	Pounds uncreamed		Pounds processed	Pounds natural	
	14½ oz. No. 10 can can	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Gallons 0.2	Gallons 2.0	Gallons 1.3	Gallons 0.2	Gallons 0.2	Gallons 0.2	Gallons 0.8	Gallons 0.5	Gallons 0.1	Gallons 0.1	Gallons 0.1	Gallons 0.7	Gallons 0.7	
2	.5	4.0	2.6	.5	.4	.3	1.6	1.1	.2	.2	.1	1.4	1.5	
4	.9	7.9	5.2	.9	.9	.6	3.2	2.2	.4	.4	.2	2.7	3.0	
6	1.4	11.9	7.7	1.4	1.3	.9	4.8	3.3	.6	.5	.4	4.1	4.4	
8	1.8	15.9	10.3	1.8	1.7	1.2	6.4	4.4	.7	.7	.5	5.5	5.9	
10	2.3	19.9	12.9	2.3	2.1	1.6	8.0	5.5	.9	.9	.6	6.9	7.4	
20	4.5	39.7	25.8	4.6	4.3	3.1	16.0	10.9	1.9	1.8	1.2	13.7	14.8	
30	6.8	59.6	38.7	6.8	6.4	4.7	24.0	16.4	2.8	2.7	1.8	20.6	22.2	
40	9.0	79.5	51.6	9.1	8.6	6.2	32.0	21.8	3.7	3.5	2.4	27.5	29.6	
50	11.3	99.4	64.5	11.4	10.7	7.8	40.0	27.3	4.6	4.4	3.1	34.4	37.0	
60	13.5	119.2	77.4	13.7	12.9	9.3	48.0	32.8	5.6	5.3	3.7	41.2	44.4	
70	15.8	139.1	90.3	16.0	15.0	10.9	56.0	38.2	6.5	6.2	4.3	48.1	51.8	
80	18.0	159.0	103.2	18.2	17.1	12.4	64.0	43.7	7.4	7.1	4.9	55.0	59.2	
90	20.3	178.9	116.1	20.5	19.3	14.0	72.0	49.1	8.3	8.0	5.5	61.8	66.5	
100	22.5	198.7	129.0	22.8	21.4	15.5	80.0	54.6	9.3	8.9	6.1	68.7	73.9	

How to use:

- Locate the column of the table which identifies the dairy product and unit of purchase.
- Proceed down the column to the figure horizontal to the number of units issued shown in col. (1).
- This figure represents the gallons of milk equivalent of the dairy product to be added to equivalents of other dairy products and gallons of fluid milk to give total gallons of milk for comparison with food plans.

TABLE 13.—*Nutritive value per pound of food groups*¹

Food group	Food energy	Protein	Fat	Carbo-hydrate	Calcium	Iron	Vitamin A value	Thia-mine	Ribo-flavin	Niac-in	Ascorbic acid
Meat, poultry, fish ^{2 3}	720	Gm. 62	Gm. 50	Gm. 1	Mg. 50	Mg. 7.6	I.U. 2,200	Mg. 0.45	Mg. 0.79	Mg. 13.8	Mg. 2
Eggs: ²											
Per pound	660	52	46	4	220	9.3	4,800	.36	1.14	.2	0
Per dozen	990	78	70	5	330	14.0	7,100	.54	1.71	.3	0
Dry beans, peas, nuts ²	2,030	109	105	190	560	26.0	0	1.76	.87	30.0	0
Milk, cheese, ice cream (milk equivalent): ²											
Per pound	290	16	16	20	530	.3	600	.14	.73	.3	4
Per quart	620	35	33	43	1,140	.6	1,400	.30	1.57	.6	9
Per gallon	2,480	140	132	172	4,560	2.4	5,600	1.20	6.28	2.4	36
Dark-green and deep-yellow vegetables ²	200	7	1	44	200	4.1	23,900	.23	.31	2.0	92
Citrus fruit, tomatoes ²	160	4	1	37	50	2.1	2,600	.29	.12	2.5	119
Potatoes ²	290	8	0	65	30	2.4	0	.30	.12	5.0	48
Other vegetables and fruits ²	190	4	1	46	70	2.4	1,500	.16	.15	1.7	35
Flour, cereals, bakery products (flour equivalent) ^{4 5}	2,000	54	26	387	480	14.8	100	1.51	1.06	13.4	0
Fats, oils ²	3,770	1	425	1	30	0	5,000	0	0	0	0
Sugars, sweets ⁴	1,670	3	4	412	150	4.5	0	.02	.13	.5	2

Use these values if most of baked goods including bread are produced at the institution

Flour, cereals, bakery products (flour equivalent) ^{2 5}	1,650	46	5	347	80	11.8	100	1.62	0.84	13.1	0
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¹ Nutritive values are for edible parts of foods per pound "as purchased." Losses in cooking have been deducted for those foods usually served cooked.

² Weights used in calculating the nutritive values per pound of food group were based on per capita civilian supplies for 1962.

³ Retail cuts of beef, veal, and lean pork were assumed as trimmed of $\frac{1}{2}$ separable fat, and lamb and mutton of $\frac{2}{3}$ separable fat.

⁴ Weights used in calculating the nutritive values per pound of food group were based on average consumption of U.S. housekeeping families. Household Food Consumption Survey, 1955, Report No. 1.

⁵ Assumes enrichment of most of flour and cereal products.

Source: Based on nutritive values published in U.S. Dept. Agr., Agr. Handb. 8, revised 1963; and unpublished data.

TABLE 14.—*Consumption weights used in deriving nutritive value per pound of food groups*¹

Food items	Percentage distribution of food as purchased	Food items	Percentage distribution of food as purchased
Meat, poultry, fish			
Beef	34		
Veal, lamb, and mutton	5		
Pork, lean	21		
Poultry	19		
Fish	6		
Bacon, salt pork	9		
Other variety meat, game	6		
Dry beans, peas, nuts (dry-weight basis)			
Beans, peas	50		
Nuts, shelled	42		
Other (soya flour, grits)	8		
Milk, cheese, ice cream (milk equivalent)			
Milk:			
Fluid, whole and nonfat	63		
Evaporated, condensed	8		
Nonfat dry	12		
Cream, ice cream	5		
Cheese	12		
Dark-green and deep-yellow vegetables			
Dark-green:			
Fresh	35		
Canned	9		
Frozen	5		
Deep-yellow:			
Fresh	41		
Canned	8		
Frozen	2		
Citrus fruit, tomatoes			
Citrus fruit:			
Fresh	29		
Canned	6		
Frozen (single-strength equivalent)	19		
Citrus fruit, tomatoes—Continued			
Tomatoes:			
Fresh	25		
Canned whole and juice	9		
Canned concentrate, catsup, etc.	12		
Potatoes			
Fresh	96		
Canned and frozen	4		
Other vegetables and fruits			
Vegetables:			
Fresh	38		
Canned	12		
Frozen	2		
Fruits:			
Fresh	32		
Canned, including juice	13		
Frozen	2		
Dried	1		
Flour, cereals, bakery products (flour equivalent weight)²			
Flour, cereal	55		
Bakery products, soups	41		
Mixes	4		
Fats, oils			
Butter, margarine	33		
Other fat	42		
Oils, salad and cooking	25		
Sugars, sweets²			
Sugar	62		
Jam, jellies, sirups	25		
Desserts, soft drinks (sugar content)	13		

¹ Based on 1962 per capita consumption unless otherwise noted.² Based on 1955 Household Food Consumption Survey Report No. 1.

TABLE 15.—*Estimating the nutritive value of food used*¹
 [Sample worksheet]

Food group	Quantity of food ²	Food energy	Protein	Calcium	Iron	Vitamin A value	Thiamine	Riboflavin	Niacin	Ascorbic acid
Meat, poultry, fish-----	0.550	Cal. 396	Gm. 34.1	Mg. 28	Mg. 4.18	I.U. 1,210	Mg. 0.25	Mg. 0.43	Mg. 7.6	Mg. 1
Eggs-----	3.123	81	6.4	27	1.14	590	.04	.14	.0	0
Dry beans, peas, nuts-----	.027	55	2.9	15	.70	0	.05	.02	.8	0
Milk, cheese, ice cream-----	4 1.683	488	26.9	892	.50	1,010	.24	1.23	.5	7
Dark-green and deep-yellow vegetables-----	.104	21	.7	21	.43	2,486	.02	.03	.2	10
Citrus fruit, tomatoes-----	.327	52	1.3	16	.69	.850	.09	.04	.8	39
Potatoes-----	.249	72	2.0	7	.60	0	.07	.03	1.2	12
Other vegetables and fruits-----	.728	138	2.9	51	1.75	1,092	.12	.11	1.2	25
Flour, cereals, bakery products ⁵ -----	5 327	654	17.7	157	4.84	33	.49	.35	4.4	0
Fats, oils-----	.076	287	.1	2	0	380	0	0	0	0
Sugars, sweets-----	.110	184	.3	16	.50	0	0	.01	.1	0
Total-----		2,428	95.3	1,232	15.33	7,651	1.37	2.39	16.8	94

¹ See table 13, p. 29, for values per pound of food groups used in computation.

² Quantity of food (as purchased) used per person per day calculated by dividing total quantity used, by the number of persons eating times the number of days in the reporting period. Quantities entered are samples only.

³ Dozens times 1.5=pounds of eggs.

⁴ Quarts of milk equivalent times 2.15=pounds of milk equivalent (see p. 15).

⁵ Quantity in pounds of flour equivalent (see p. 15).

TABLE 16.—*Computing the average dietary allowance for the institution*
 [Sample worksheet]

Sex and age	Persons	Food energy	Protein	Calcium	Iron	Vitamin A	Thiamin	Riboflavin	Niacin equivalent	Ascorbic acid
Children:										
4 to 6 years-----	No. 17	Cal. 27,200	Gm. 510	Gm. 13.6	Mg. 170.0	I.U. 42,500	Mg. 13.6	Mg. 15.3	Mg. 187	Mg. 680
6 to 8 years-----	25	50,000	875	22.5	250.0	87,500	25.0	27.5	325	1,000
8 to 10 years-----	30	66,000	1,200	30.0	300.0	105,000	33.0	36.0	450	1,200
Girls:										
10 to 12 years-----	10	22,500	500	12.0	180.0	45,000	11.0	13.0	150	400
12 to 14 years-----	8	18,400	400	10.4	144.0	40,000	9.6	11.2	120	360
Women:										
22 to 35 years-----	10	20,000	550	8.0	180.0	50,000	10.0	15.0	130	550
Total-----	100	204,100	4,035	96.5	1,224	370,000	102.2	118.0	1,362	4,190
Dietary allowance per person-----	1	2,041	40.4	1.0	12.2	3,700	1.02	1.18	13.6	42
Nutritive value of food used per person per day ¹ -----		2,428	95.3	1.2	15.3	7,651	1.37	2.39	² 16.8	94

¹ Sample worksheet, table 15.

² From dietary sources of the preformed vitamin only.

TABLE 17.—*Recommended daily dietary allowances*¹

Sex and age (years)	Energy Cal.	Protein Gm.	Calcium Gm.	Iron Mg.	Vitamin A value I.U.	Thia- min Mg.	Ribo- flavin Mg.	Niacin equiva- lent Mg.	Ascorbic acid Mg.
Children:									
½ to 1	900	16	0.6	15	1,500	0.5	0.6	8	35
1 to 2	1,100	25	.7	15	2,000	.6	.6	8	40
2 to 3	1,250	25	.8	15	2,000	.6	.7	8	40
3 to 4	1,400	30	.8	10	2,500	.7	.8	9	40
4 to 6	1,600	30	.8	10	2,500	.8	.9	11	40
6 to 8	2,000	35	.9	10	3,500	1.0	1.1	13	40
8 to 10	2,200	40	1.0	10	3,500	1.1	1.2	15	40
Males:									
10 to 12	2,500	45	1.2	10	4,500	1.3	1.3	17	40
12 to 14	2,700	50	1.4	18	5,000	1.4	1.4	18	45
14 to 18	3,000	60	1.4	18	5,000	1.5	1.5	20	55
18 to 22	2,800	60	.8	10	5,000	1.4	1.6	18	60
22 to 35	2,800	65	.8	10	5,000	1.4	1.7	18	60
35 to 55	2,600	65	.8	10	5,000	1.3	1.7	17	60
55 to 75+	2,400	65	.8	10	5,000	1.2	1.7	14	60
Females:									
10 to 12	2,250	50	1.2	18	4,500	1.1	1.3	15	40
12 to 14	2,300	50	1.3	18	5,000	1.2	1.4	15	45
14 to 16	2,400	55	1.3	18	5,000	1.2	1.4	16	50
16 to 18	2,300	55	1.3	18	5,000	1.2	1.5	15	50
18 to 22	2,000	55	.8	18	5,000	1.0	1.5	13	55
22 to 35	2,000	55	.8	18	5,000	1.0	1.5	13	55
35 to 55	1,850	55	.8	18	5,000	1.0	1.5	13	55
55 to 75+	1,700	55	.8	10	5,000	1.0	1.5	13	55
Pregnant ²	2,200	65	1.2	18	6,000	1.1	1.8	15	60
Lactating ²	3,000	75	1.3	18	8,000	1.5	2.0	20	60

¹ Allowances for all nutrients are from National Research Council's *Recommended Dietary Allowances*, 7th ed., 1968. Age groups include the persons of the first age listed

up to but not including those of the second age listed.

² Based on allowances for women 22 to 35 years of age.

Government Publications Available⁶

Food Acceptance Service for Quantity Buyers⁷

- Dairy products inspection service, aid for quantity buyers. AMS-366. 1960.
- Institutional meat purchase specifications, general requirements. Rev. 1969. 10 cents.
- Institutional meat purchase specifications for fresh beef. Series 100. Rev. 1970. 20 cents.
- Institutional meat purchase specifications for fresh lamb and mutton. Series 200. Rev. 1970. 10 cents.
- Institutional meat purchase specifications for fresh veal and calf. Series 300. Rev. 1971. 15 cents.
- Institutional meat purchase specifications for fresh pork. Series 400. Rev. 1971. 15 cents.
- Institutional meat purchase specifications for cured, cured and smoked, and fully-cooked pork products. Series 500. Rev. 1971. 15 cents.
- Institutional meat purchase specifications for cured, dried, and smoked beef products. Series 600. 1970. 10 cents.
- Institutional meat purchase specifications for edible by-products. Series 700. 1971. 10 cents.
- Institutional meat purchase specifications for sausage products. Series 800. 1970. 20 cents.
- Institutional meat purchase specifications for portion-cut meat products. Series 1000. Rev. 1970. 20 cents.
- USDA's Acceptance Service for Meat and Meat Services, MB No. 47. 1970.
- USDA's Acceptance Service for Poultry and Eggs. MB No. 46. 1971.
- Official grade standards and inspection for fresh fruits and vegetables. AMS 520. 1963.
- You can buy quantity and still control quality. USDA Program Aid 675. 1965.

Nutrition

- Composition of foods . . . raw, processed, prepared. USDA Handb. 8, 189 pp. 1963. \$2.00.
- Food for Fitness . . . a daily food guide. USDA Leaflet 424, 8 pp. Rev. slightly 1971.
- Food for groups of young children cared for during the day. U.S. Children's Bur. Pub. 386, 58 pp. 1960. 25 cents.
- Foods your children need. U.S. Children's Bur. Folder 14. 1967. 10 cents.
- Nutritive value of foods. USDA Home and Gard. Bul. 72, 41 pp. Rev. slightly 1971.

Quantity Food Purchasing

- Food buying guide for type A school lunches. USDA Program Aid 270, 75 pp. 1964. \$1.25. (Revision in press.)
- Food purchasing guide for group feeding. USDA Handb. 284, 54 pp. 1965. 40 cents.
- How to buy beef roasts. USDA Home and Gard. Bul. 146, 15 pp. 1968.
- How to buy cheese. USDA Home and Gard. Bul. 193. 1970.
- How to buy canned and frozen vegetables. USDA Home and Gard. Bul. 167, 23 pp. 1969.
- How to buy eggs. USDA Home and Gard. Bul. 144. 1968.
- How to buy fresh fruits. USDA Home and Gard. Bul. 141, 23 pp. 1967.
- How to buy fresh vegetables. USDA Home and Gard. Bul. 143, 23 pp. 1967.
- How to buy instant non-fat dry milk. USDA Home and Gard. Bul. 140. 1967.
- How to buy meat for your freezer. USDA Home and Gard. Bul. 166, 27 pp. 1969.
- How to buy poultry. USDA Home and Gard. Bul. 157. 1968.
- How to use USDA grades in buying food. USDA Home and Gard. Bul. 196. 1971.
- USDA Food Donation Programs. USDA Program Aid 667. 1970.

Quantity Food Service

- A guide to nutrition and food service for nursing homes and homes for the aged. DHEW Pub. No. (HSM) 71-6701, 111 pp. 1971. \$1.75.
- Fish cookery for one hundred. USDI Test Kitchen Ser. 1, 44 pp. 1950.
- Quantity recipes for type A school lunches (card file). USDA Program Aid 631. 1971. \$8.00.
- Recipes for quantity service (card file). USDA Home Econ. Res. Rpt. 5, Rev. 1972. \$5.75.

⁶ Publications indicated for sale may be obtained *only* from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; USDI publications may be obtained from the Bureau of Commercial Fisheries, U.S. Department of the Interior, Washington, D.C. 20240; USDA publications may be obtained from the Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

⁷ The Agricultural Marketing Service of the U.S. Department of Agriculture offers a special acceptance service to assist food buyers in obtaining large volumes of food products tailored to meet their specific needs. This service can be used in purchasing fresh and processed fruits and vegetables, meats and meat products, poultry and eggs, and dairy products.

